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Paper and Pulp Production for Month of April

According to Identical Mill Reports to the Statistical Department of the American Paper and Pulp Association from Members and Cooperating Organizations Total Production of Paper Decreased About 6 Per Cent as Compared With the Preceding Month—Wood Pulp Production Showed a Decrease of 3 Per Cent

According to identical mill reports to the Statistical Department of the American Paper and Pulp Association from members and cooperating organizations, the daily average of total paper production in April decreased 6.6 per cent under March and 16.1 per cent under April, 1931. The daily average wood pulp production in April was 3.0 per cent below March 1932, and 16.9 per cent below April 1931.

Compared with April a year ago, the daily average production registered a decrease in the following grades: News print, uncoated book, paper board, wrapping, bag, tissue, writing, hanging and building papers. Compared with March 1932, the following percentage decreases were registered in the daily average production: News print, 5.0 per cent; paper board, 9.5 per cent; uncoated book, 5.1 per cent; tissue, 13.1 per cent; writing, 13.1 per cent; bag, 10.8 per cent; and building, 6.9 per cent.

The four months, cumulative total of production of paper was 9.5 per cent below the corresponding period in 1931 while shipments were 8.8 per cent smaller than a year ago. All paper grades, excepting bag paper, registered decreases in production at the end of the four-month period as compared with the end of the four-month period in 1931.

The four months' cumulative total of wood pulp production for 1932 was reported as 8.5 per cent below the level of the same period in 1931.

Total shipments of wood pulp to the outside market were 24.1 per cent below the level of the four months' total of 1931. Kraft pulp shipments to the open market were greater than in the four months of 1931.

Total wood pulp inventories showed an increase, and at the end of April were 8.9 per cent above the level of April 1931. All grades, excepting kraft and soda pulp, showed inventories above the level of April 1931.

REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF APRIL, 1932

Grade	Production tons	Shipments tons	Stocks on hand end of month tons
News print	91,235	94,296	35,417
Book Uncoated	65,169	65,595	39,086
Paperboard	135,249	135,713	57,610
Wrapping	41,944	41,620	40,692
Bag	10,704	10,885	5,698
Writing, etc.	22,284	22,274	44,299
Tissue	5,719	6,328	6,945
Hanging	1,548	1,754	3,398
Building	4,541	4,824	2,829
Other grades	13,960	14,774	15,792
Total All Grades April, 1932	392,353	398,063	251,766
Total All Grades 4 Mos. 1932	1,633,086	1,643,750	251,766
Total All Grades 4 Mos. 1931	1,804,107	1,801,846	275,332

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF APRIL, 1932

Grade	Production tons	Used during month tons	Shipped during months tons	Stocks on hand end of month tons
Groundwood	74,660	65,820	1,377	67,851
Sulphite, News Grade	25,861	23,797	1,292	6,780
Sulphite, Bleached	18,880	16,887	1,412	3,123
Sulphite, Easy Bleaching	1,479	1,384	109	1,298
Sulphite, Mitscherlich	4,265	2,247	1,636	2,216
Kraft Pulp	22,706	17,862	4,921	3,850
Soda Pulp	14,885	12,738	2,137	2,491
Other Grades	256	452	48	96
Total All Grades April, 1932	162,992	141,187	12,932	87,705
Total All Grades 4 Mos. 1932	664,363	598,459	54,766	87,705
Total All Grades 4 Mos. 1931	725,894	643,152	72,169	80,522

Paper Men Get Patents

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., July 11, 1932—A group of local inventors have been awarded patents for devices that are expected to be useful to the paper manufacturing industry. John A. Wiener and John B. Harmon have perfected a wet machine for insulating board which is adapted to produce a continuous thick web of fiber. It embodies a vacuum method for extracting water from the web. Mr. Wiener is general manager of the Oswego Board Company.

An apparatus for filling valve bags has been invented by E. A. Marsh and the patent rights have been assigned to the St. Regis Paper Company. The invention is equipped with scales that weigh the bags as they are filled. An automatic device is provided to shut off the main feed supply when the bag is nearly full and the auxiliary feeding means when the bag has received a full charge. A closing device for bag filling machines invented by William R. Peterson has also been awarded a patent. Both inventors have assigned patent rights to the St. Regis Paper Company.

Ontario Paper Manufacturers Fairly Active

While Not Running On Full Time Continuously, Operations At Many Plants Are Being Maintained In Satisfactory Volume—With Exception of High Grade Stocks, Demand for Various Lines of Paper Is Holding Up As Well As Expected

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 11, 1932.—Although the volume of wholesale paper sales has naturally been affected by the holiday season, business has kept up fairly well and there is still quite a fair demand for most grades of paper, barring the high grade stock. A number of the paper merchants report that sales during the past month and on into the beginning of July compare very favorably with those of the corresponding period of last year and that except for the tendency of practically all consuming sources to buy in small quantities the total volume of turn over is being maintained to a point that does not recognize the prevailing trade depression. There is a relatively good demand for fine papers of the lower grades, and tags, manillas, cover papers and other Canadian products, such as blotting and blanks, are selling quite well.

Paper Mills Fairly Active

Paper manufacturing operations are being carried on a fairly active basis although none of the plants may be said to be running full time continuously. Prices for fine paper are somewhat lower than at the same time last year, but despite earlier reports of price-cutting in the fine paper field, no untoward changes have taken place in the schedules. It was stated that two of the major producers had made substantial cuts on standard grades of bond paper, but this has not proven to be the case. No changes have taken place in the regular schedules. There are slight variations from time to time, due to special circumstances, but these changes are said to have been of a minor character and cannot be regarded as price-cutting. It is pointed out that manufacturers of high grade book, bond, coated and writing papers did not expand plants nearly as much beyond market requirements as did news print companies. Therefore, well-run companies have found themselves able to meet some needed drops in price and demand by economies which have still permitted payments of dividends on all but the common stock. Provincial Paper, for instance, by a system of short weeks and partial lay offs from time to time to keep all of their five plants in operation.

In the meantime all of the big fine paper manufacturing companies in the Dominion are watching preparations for the Imperial Economic Conference which opens in Ottawa at the end of this month. A fair volume of export business is done by the Canadian producers with other parts of the Empire and any change in the existing preferences would naturally be of interest to them.

Bond Investors Settle Default

On the recommendation of the National Trust Company, Ltd., Toronto, holders of Vancouver Kraft Company 6½ per cent first mortgage bonds dated May 15, 1828, have been granted a four year moratorium on the interest and sinking fund payments on the bonds which were in default May 15, 1931. Under the terms of the agreement the Columbia River Paper Company is to advance sufficient money to meet shut down expenses of maintaining the property, a partly completed 100-ton kraft mill at Port Mellon, B. C., up to May, 1935, receiving for such advances four-year 6½ per cent notes of the Vancouver Kraft Company. The Columbia River Paper Company can teminate the agreement on sixty-day notice. The meeting was originally called for May 5, but only about $134,500 of the total issue of $1,143,000 of bonds were represented, and adjournment was decided on. Suit has been brought by a Spokane committee of bondholders charging misrepresentation in the sale of the bonds and a Portland company is considering filing a separate suit. F. W. Leadbetter, president of the Columbia River Paper Company is also president of Vancouver Kraft.

Paper Dealer Loses by Fire

A fire of suspected incendiary origin gutted the premises in Hamilton, Ont., of the E. Pullan Company, Ltd., rag and paper stock dealers, Toronto. The fire caused damage to the extent of about $30,000. Breaking out in the stacks of baled paper in the early morning the fire spread rapidly to stock in other parts of the building and 400 tons of baled waste paper were soon consumed. Damage to the building is estimated at $15,000 and equipment $9,000. The building was adequately covered by insurance but the stock was only partly covered.

Wirebound Box Co. Profits Down

Net earnings of Canadian Wirebound Boxes, Ltd., Toronto, which includes manufacture of corrugated paper boxes in its activities, for the past financial year were equivalent to 50 cents per share, against $1.92 in the previous year, according to the financial statement just issued. Gross earnings of $71,894 compared with $182,-491, and after depreciation and adjustments there remained net earnings of $36,072, against $146,113. Dividends paid amounted to $72,423, and with transfer of $3,894 to special surplus, surplus was reduced from $79,-300 to $39,147. Special surplus was increased from $204,200 to $275,000 by adjustment repurchase of class "A" shares to $66,906 and transfer from general surplus. Liquid position was maintained with the ratio of current assets to liabilities approximately seven to one, contrasted with six to one at the end of the preceding period.

Abitibi Power Project Halted

Work on the $23,000,000 Abitibi Canyon power development of the Ontario Power Service Corporation, a subsidiary of the Abitibi Power and Paper Company, was halted on July 7, throwing nearly a thousand men out of employment. Prime Minister Hon. George S. Henry, speaking for the Ontario Government, which is negotiating to take over the enterprise, said that the Abitibi company had been having difficulty in getting money to carry on the construction work and he presumed that they had now come to the end of their ready resources in that respect. That it would have some effect upon the Government's consideration of plans to take over the development, he said, was undoubted, but he declined to discuss the possible effect. The Government, it is reported, could not be persuaded to guarantee to the Dominion Construction Company, contractors on the work, that the Government would pay for any work they did during the

period in which the Government does not own the enterprise.

Notes and Jottings of the Trade

Automatic Paper Box Company, manufacturers of folding and set up boxes, which for years have operated at 180 John street, Toronto, have moved into new leased premises at 20-40 Logan Avenue, where they have secured additional manufacturing space.

John Wesley, sales manager of the Rhinelander Paper Company, Rhinelander, Wis., was a recent visitor in Toronto.

S. Harvey Smith, of Price Bros., Ltd., Quebec City, was a recent caller on the Toronto paper trade.

The Sault Ste. Marie mill of the Abitibi Power and Paper Company, which has been running four or five days a week in June, is now operating on full time for the month of July, C. O. Sisler, mill manager, announced a few days ago.

Lee Roy Wilson, vice-president and general manager of the Abitibi Power and Paper Company, Toronto, confirmed information that the North Bay office of the company would close August 1. After that date the business now transacted at North Bay will be done in Toronto, Mr. Wilson said.

Bondholders of Quinte and Trent Valley Power Company, subsidiary of Canadian Paperboard Company, have approved a proposal to waive interest payable and deferred during the period of 24 months from and including July 1, 1932, to July 1, 1934. It is stipulated that interest accumulated and for the previous period of eighteen months shall also become payable at that time. They have also agreed that sinking fund be waived and inoperative during the years 1932 and 1933. Interest has been in default since November, 1930.

Hans Hormavirta, pulpwood jobber, Sault Ste. Marie, Ont., has received a large contract for pulpwood for export to the United States which he expects will keep him busy all summer and a good part of the winter. The pulpwood will be cut in the Hearst area and the operation will probably assist in relieving the unemployment situation in that district.

The Canadian Tie and Lumber Company, Ltd., Toronto, are taking out several thousand cords of pulpwood in the Parry Sound district and have 250 men engaged in cutting and sap-peeling spruce. The pulpwood will be shipped from Ardberg and Burk's Falls early in the fall.

Courtland B. Griffin Gets Patent

WASHINGTON, D. C., July 11, 1932.—Courtland B. Griffin of Longmeadow, president of the Carew Manufacturing Company, of South Hadley Falls, Mass., was recently awarded a patent for his invention of a special air decking process for making deckle edge paper.

The patent, for which application was made in July, 1930, covers three particular features of the invention. All patent rights have been assigned the Carew Manufacturing Company, the U. S. Patent Office states in announcing the award.

A description of the invention, follows:

"The combination with the movable web forming member of a paper making machine of apparatus for making deckle edge paper comprising in combination, a main common air supply pipe and a support disposed transversely of said web forming member, a plurality of slide members rotatably and slidably adjustable on said support, nozzle tubes slidably adjustable in said slide members and flexible connections between tubes and said common supply pipe whereby the slide members may be adjusted independently of one another."

Indianapolis Looks for Expansion

INDIANAPOLIS, Ind., July 11, 1932.—Although considerable uncertainty prevails in the paper trade here, some business is being done. Weather conditions, naturally, have retarded business to some extent, but this is usual during the summer months. As a result most of the plans locally are being made for the opening of the fall season. The general rule in this trade area is for a slight increase in volume by the end of July and then a further one before the middle of August.

The news print situation in the larger cities is something to think about. The papers here and in the larger industrial cities are smaller now than they ever have been. And the loss of advertising seems to be mostly local advertising, the national advertisers coming through in far greater proportion than the local trade. An indication of what is happening may be seen from cuts in salaries in all departments of three local papers, with the exception of the mechanical forces which are protected by union contracts. The *Indianapolis News* started some months ago with a 10 per cent cut, followed by the *Indianapolis Times,* then this week the *Indianapolis Star.* All cuts were the same, but this week the *Indianapolis News,* the largest paper in the state, cut another 10 per cent. The publishers declare it is imperative to keep the head above water.

In the bag trade, there is a fair demand. Prices of bags, the same as in all kraft paper, are being fairly well maintained and every effort is being made to keep the market steady. Container men for the most part seem to be doing business. Dealer in summer specialties are reporting a good business and the Fourth aided somewhat in re-orders.

The waste paper market is a reflection of the general trend. Paying prices are the lowest in years and the trade is unable to keep their stocks for a possible rise because of crowded warehouses. Mills are buying virtually at their own prices.

Forestry Alumni Encouraged by Dean

In a letter to the alumni of the New York State College of Forestry, Syracuse University, Dean Hugh P. Baker sounds a note of optimism and encouragement and asks for cooperation in meeting the unsettled business conditions that have prevailed everywhere and have affected the forest industries and the employment of foresters as well as practically every profession.

Expressing confidence in the alumni in their ability to make their way in the world, the Dean says, "I feel strongly that every one of you can be of help to us that we may be of greater help to you.

"It would appear," continued the Dean, "that the low point of the depression has been passed and that conditions will improve steadily though slowly. This is not a time for criticism or bitterness but rather a time for the exercise of courage and aggressiveness. To any of you who are out of employment, let us urge unremitting effort to find employment in the field of forestry or in associated lines. Experience in associated lines will not be lost.

"Forestry is a new and broad field with many of its problems untouched. Its importance in the economic status of the country is very great. The profession is sound in principle. It is my belief that there is a greater development before us in forestry than we have witnessed in the past and those who persist in the ideals and ambitions which we have tried to emphasize will, I am sure, win out."

Dean Baker states in his letter that 65 per cent of the alumni are now engaged in forestry and he urges cooperation upon the part of all the alumni to increase this percentage.

Philadelphia Paper Market Is Less Active

Prevailing Demand for Various Standard Grades of Paper, of Small Proportions, With Exception of Certain Summer Specialties—Movement of Wrapping Paper Specialties Into Consumption Limited—Collections Reported Slow

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 11, 1932—Typically of the holiday character in its trend the Philadelphia paper market was less active. With the exception of those dealers making a specialty of certain seasonal lines the distributors found demands of small proportions to tide over a few days requirements of consumers of fine papers. Wrapping papers are likewise moving in limited volume. The most optimistic factor is the steadiness of prices, though demands lag along, waiting for business to adjust itself to normal conditions. Dealers in soda fountain supplies, sanitary specialties, paper outing goods, fancy summer novelties, drinking cups, have been enjoying a fair demand over the holiday period. Krafts are steady, though quieter. Distributors and mill agents report slowness in collections. While there was a broader inquiry for future orders just prior to the holidays, the past week found these lagging and larger consumers who buy in bulk are holding off such orders as were the object of these inquiries. Paper stocks and rags are draggy, with prices holding despite the duller summer trend. Paper boards are now selling at the lowest in the history of the Quaker City trade. While the market quotations are held at $22 to $25 prices are quoted lower than these where tonnage is available and where competing mills are eager to secure orders to maintain operations on summer schedule.

James S. Barber's Sons Celebrate

Prices of paper boards over the period of their association in the Quaker City industry are stated to be lowest for all time by James S. Barber's Sons, 21 North 4th street, distributors of paper boards, now celebrating their 67th year of business history. The firm was founded in 1865 by James S. Barber and is now conducted by the sons, A. E. Barber and E. W. Barber.

Paper Jobbers To Meet

Having placed the meeting dates on summer schedule, the Philadelphia Paper Jobbers Association has set July 20th as the time for this month. The meeting will be held at the Elks Club, in the evening. At that time there will be taken up the question and plans for the summer outing to be held in the near future by the Outing Committee of the following members:—Samuel Krepow, Samuel Feldman, and Lewis Gerber, of the Enterprise Paper Company; Russell Jeffers, J. T. Witte Paper Company; Jack Zacher, Atlas Paper Company; and George Hunter, of the Ellwood Basler Company.

Another topic that will occupy the time of the jobbers is that on Credit Interchange, the committee having selected a system which will be submitted to the members for approval. The Credit Interchange Committee met last Thursday for the purpose of definitely selecting the system that is best adopted for the needs of the group. The Committee on Credit Interchange who will submit their selection is the following:—Charles Resnick, L. Resnick and Sons; Ben Kessler, D. M. Roseman, Federal Paper Company; Frank Dubin, Dubin Paper Company; Lewis Gerber, Enterprise Paper Company; and Jack Zacher, Atlas Paper Company. The new credit system will become effective after the members have approved its adoption.

Paper Trade Association Holds Summer Session

There will be held on Wednesday, this week, the July session of the Philadelphia Paper Trade Association, at Du Fours Restaurant, 4th and Walnut streets. The summer meeting will combine that of the fine and wrapping paper divisions. Plans for a special meeting at which Assistant Secretary Chester Spaulding, of the National Paper Trade Association, will speak, will be discussed. President William A. Hentz, of the association, and vice president of the D. L. Ward Company will preside. Simon Walter of S. Walter Inc., and Butler Smythe, of the J. L. N. Smythe Company, with President Hentz, are the members of the committee to arrange for the special meeting and talk of the National Executive.

C. S. Garrett & Son Corp. Reorganized

Following the adjustment of the business of the C. S. Garrett & Son Corp. 20-22 South Marshall street, in the hands of the former president of the concern, Robert A. Batchelor, and the referee in equity proceedings, the title of the corporation was sold last week and will continue to remain in control of interests linked with the present management under Mr. Batchelor. There will be a refinancing of the corporation and the broadening of business to other lines of paper including fine book papers and bond grades, as well as specialties. The firm has been in the paper business since 1851 when it was established at its present location. Robert A. Batchelor, president of the C. S. Garrett & Son Corp., has been associated with the corporation since 1912 as president and before that time was associated with the C. S. Garrett Company in a financial capacity. The firm is the oldest roofing and building paper supply house in the Philadelphia territory. Originally a wrapping and fine paper specialty concern it later concentrated distribution in the builders supply trade. With the coming reorganization of the financial background of the corporation, new capital will be invested for the expansion into other lines of papers. The corporation will continue at the present address and will remain under the active management of Mr. Batchelor. An announcement was sent out last week informing the trade and customers of the concern that Mr. Batchelor will continue at the helm of the business and that W. R. Cole is no longer connected with the firm.

Ridgewood Paper Co. To Feature Sayford Lines

Following the closing of the Philadelphia sales offices of the Frank M. Sayford Company, of Brooklyn, N. Y., located in the Drexel Building, the line of the Sayford company will be featured by the Ridgewood Paper Company, 924 Cherry street, the distributive house established here over a year ago where a complete assortment of the specialties are carried in the warehouses for supplying the paper dealers and large consumers. The local offices were discontinued at the end of the week. They were devoted to supplying the trade as Philadelphia sales branch. Philip J. McCoy, who has been in charge of the Quaker City offices will make the Brooklyn headquarters his quar-

ters and will cover the Middle West and the Philadelphia section trade. The Ridgewood Paper Company features the Sayford lines of glassine and cellophane bags and wraps, fancy paper doilies and table sets, sanitary tissues, napkins, butter chips and paper dishes, towels, ice cream servicing and soda fountain supplies, the Lily and Dixie Cups and like paper wares. John Glass is manager of the Ridgewood company and R. J. Smith his assistant.

Charles Beck Paper Co. Adds New Covers

The Charles Beck Paper Company, 401 North Broad street, has added to its stocks of fine papers the Economy cover papers made by the Kimberly Clark Corporation, of Neenah, Wis. The Beck Company will be sole agent for the Economy covers in the Philadelphia territory. The dealers will cover the Pennsylvania territory east of Harrisburg, Southern New Jersey, and Delaware and Maryland. The line is stocked in white and nine colors.

Atlas Shopping Bag Co. in New Quarters

With the removal of the Atlas Shopping Bag Company to larger quarters at 438 North 13th street, the firm has expanded its business to twice its former capacity. The Atlas Company has acquired the entire five story structure for the manufacture of shopping bags for advertising purposes, and makes the lines in one or more colors printed and designed assortment as well as plain grades for the paper jobbing trade only. The firm also produces novelty shopping bags. The business was formerly located at 231 North 2nd street, and was established more than a decade ago by the present head of the firm, Aaron Toll.

Paper Specialty Co. Features Scott Tissues

The Paper Specialty Company has opened a distributive house for the Scott Tissues at 1102 Sansom street, with Harry Uffenbacht as head of the firm. The concern covers the consuming trades for the Scott towels and other tissues.

Supply Men at Convention of Box Makers

Philadelphia paper supply houses affiliated with the National Paper Box Manufacturers Association will attend the annual meeting of the Central Division to be held in Reading, Pa., July 20 and 21. The Annual Convention headquarters will be in the Abraham Lincoln Hotel. There will be an outing held on the Mountain on the 20th with a program of sports, picnic luncheon and dinner and other open air diversions. The business sessions will be held in the Abraham Lincoln Hotel. Among the Philadelphia paper houses to be represented are the Matthias Paper Corporation, A. S. Datz & Son, and its subsidiary, the Service Paper Company, Whiting Patterson Company, Philip Rudolph & Sons, the Louis DeJonge Company.

N. A. Considine Honored by Poor Richards

Norbert A. Considine, head of the Paper House of Pennsylvania, 30 North 6th street, was installed as first vice president of the Poor Richard Club, the Quaker City organization of advertising men at the meeting held in the Club quarters last Monday. He has served for several years as vice president of that organization being elected first vice president at the Spring election.

Container Corp. Mills Continue

Following the filing of a petition for receiver for the Container Corporation of America in Wilmington, Del. last Tuesday, no interference with the Philadelphia plant was announced. The local paper board mill and container plant in Manayunk continues to operate on its summer schedule. Recently the sales offices and container plant were consolidated under a single roof after maintaining sales offices in the building at 1700 Sansom street.

American Writing Makes Fine Display

One of the important displays at the Hotel Waldorf-Astoria in New York city, during the recent convention of the Advertising Federation of America, was that of the American Writing Paper Company, which showed many of the new developments in Eagle-A Papers.

The display was unusually attractive. The treatment was modernistic, but reserved. The colors of the panels were silver and Colonial blue, while the specimens were mounted on felt inserts of Colonial buff. The whole effect was most harmonious. The central panel contained an illuminated relief painting of the city of Holyoke, looking across the Connecticut River, towards Mt. Tom in the background. This was worked up in oils from an original sketch made not long ago by the noted artist, Vernon Howe Bailey. The two panels on the left showed the four Reference Portfolios containing complete samples of the Eagle-A Papers. A cabinet for containing these was shown at the right on the covered table. The next three panels to the right showed respectively the recent direct-mail campaigns on American Eggshell Text, Herculean Cover and Contract Bond. The last panel displays standard sample books on a number of the other Eagle-A Lines.

A great many visitors were received by the American Writing Paper Company representatives during the five days of the convention. One of the important purposes of the exhibit was to show the company's faith in advertising under all conditions. The American Writing Paper Company appears to stand squarely behind the various advertising associations of the country in their efforts to promote the welfare of advertising in all its phases. After all, advertising helps to lead the advance of civilization. The paper industry, as a whole, being closely identified with advertising, may well seek to do all in its power to further advertising's every interest.

Union Bag Strike Near End

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., July 11, 1932—It is reported that a settlement of the strike at the Union Bag and Paper Corporation is near. Since the open shop was inaugurated several weeks ago only a few of the strikers have returned and it is estimated that over 200 hands are still out. The desertions from the union ranks are said to be machinists and firemen that have been employed by the company for many years. It was announced that two machines are being operated at the Fenimore mill while equipment at the Allen division is also being used in the production of paper.

Although negotiations are said to be under way it could not be learned the nature of the terms offered to the strikers to return to work. Union officials claim that there have been no desertions from the group of union members known as skilled papermakers and remain firm in their attitude that the organization must be recognized in dealing with the company.

Superior Products to Build

MT. WOLF, Pa., July 11, 1932—The Superior Paper Products Company, of Carnegie, will erect a plant in Mt. Wolf. Employment will be given to about fifty persons.

A new plant is to be built, the work to start the middle of this month. The company has two sites in prospect. The building is to be completed by the middle of November, when work will be started. The Superior Products Company are manufacturers of corrugated containers.

Activities of Fox River Valley Paper Mills

Wisconsin Public Service Commission Grants Permit to Consolidated Water Power & Paper Co. to Raise Level of Its Wisconsin River Dam At Stevens Point—Wisconsin Paper Manufacturers Lose Car Switching Contract Suit

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 11, 1932—After having under consideration for some time the application of the Consolidated Water Power and Paper Company to raise the level of its dam on the Wisconsin River at Stevens Point, Wis., the Wisconsin Public Service Commission has finally granted the permit. The dam was rebuilt to a higher level last year at a cost of approximately $100,000 so as to produce additional power and improved flowage at the Consolidated mill at Stevens Point. The project entailed alteration of a city park, a railroad right-of-way and changes to streets.

After the work had been done, land owners in adjoining townships protested against possible damage to farms and highways. An agreement was reached to rebuild some of the roads, and repair any damage which might come to others. The company also agrees to protect the high tension sub-station of the Wisconsin Valley Electric Company and the gas plant of this company against damage. The Consolidated also agrees to lower its pond when necessary to protect certain bridges against ice jams, or when repairs are needed.

Some of the objections raised against the project were found to be without foundation, because the damage complained of came from other waters, and not the Consolidated pond. No benefits or damages were assessable by the commission, under the law, but will have to be obtained by proper redress in the courts, the decision says.

The decision grants the Consolidated permission to maintain a maximum pond elevation of 96.87 feet. The pond level was actually raised to approximately this elevation in the summer of 1931.

Terminal Switching Decision

Under a decision in the circuit court at Madison, Wis., the Nekoosa-Edwards Paper Company, Nekoosa, Wis., the Marathon Paper Mills Company, Rothchild, Wis., and the Mosinee Paper Mills Company, Mosinee, Wis., are the losers in a suit contesting the legality of a law passed by the 1931 Wisconsin legislature forbidding railroads contracting with industrial concerns to pay them for doing their own switching of cars at factory terminals. The paper companies claimed the law impaired the obligations of contracts and was an unlawful and unreasonable interference with interstate commerce. Judge A. G. Zimmerman ruled the law is constitutional.

In 1928 and 1929, the Chicago and Northwestern, the Chicago, Milwaukee and Pacific, and the Soo Line railroads entered into agreements with the paper companies to pay them for terminal switching service subject to public regulation. After passage of the new law the roads entered into agreement with the paper companies with the public service commission and suit finally resulted.

Judge Zimmerman held there was no force to the argument that the obligations of contracts were impaired because either the railroads or the commission had the right to invalidate them at any time. He said also there was no interference with interstate commerce because the statute "does not directly apply to interstate commerce and does not directly prevent any such arrangement being made by the railroads as to interstate commerce if they see fit to do so." He said since the paper companies are not entitled as a matter of right to a switching contract there can be no violation of a constitutional right.

The law was advocated in the state legislature by railroad men who declared the switching contracts had reduced the work available to them. The case probably will be taken to the supreme court.

Terms of Syl-Mac Sale

Royalties for each gallon of waterproofing fluid used will be paid to the owners of the Syl-Mac Paper Products Company, which sold out its business last week to the Northern Mills, Inc., the laboratory division of the Northern Paper Mills, Green Bay, Wis., according to the terms of the deal announced. Those who share in the royalties are Sylvester H. Kilishek, who discovered the waterproofing formula, John A. McDonald, of Neenah, Wis., his business partner, Miss Ruth Grob, his secretary, and William Klemp, an employee, all of whom helped to develop the product commercially. A lump sum was also understood to have been paid Mr. Kilishek, plus reimbursement for his expenses incidental to developing the waterproofing process. He also enters the employ of the Northern Mills, where he becomes a director of the research division. Mr. Kilishek's process provides an absolute waterproofing process for paper and makes it impervious also to heat and certain acids. The process is highly adaptable in the manufacture of nearly all kinds of sanitary and washable paper coverings, such as table covers, wall paper and floor coverings. It has also been partly developed in the manufacture of cement bag containers and interior decorating effects, including draperies.

Harmon Paper Co. Gets Pulp Decision

[FROM OUR REGULAR CORRESPONDENT]

BROWNVILLE, N. Y., July 11, 1932—A favorable verdict has been given the Harmon Paper Company in a decision made by Supreme Court Justice Edgcomb from an action brought against it by Pagel, Horton & Co., of New York City, for the recovery of about $3,000 for bleached sulphite. In 1929 the plaintiff sold the Warren Parchment Company, of Dexter, a quantity of bleached sulphite valued at $3,684.60 and when that concern suspended operations a claim was filed with the trustee. A compromise was later made with creditors and the plaintiff accepted $921.15.

Soon afterwards, however, the plaintiff claimed that the Harmon Paper Company was liable for all debts of the defunct concern and an action was started to recover the balance of the bill. It was contended that the Warren Parchment Company was merely an agent for the local company.

The decision finds that the plaintiff cannot recover the balance and that the judgment must be entered for the defendant; that while the stock of the Warren Parchment Company was owned by the defendant they were operated as separate corporations, manufactured different grades of paper, had different markets, and were distinct and separate organizations.

Chicago Paper Market Conditions Little Changed

While Anticipating Period of Dullness During Next Ninety Days, Some Paper Executives Look for Better Times Ahead—Various Grades of Fine Paper, Including Bonds and Ledgers, Continue Spotty—Book and Cover Papers Dull

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 9, 1932.—Despite a quietness prevailing in all markets in Chicago, paper representatives in this city, even though looking for a period of dullness during the next ninety days, give every indication of believing that liquidation has been complete and that the balance of the year will find them giving a better account of themselves than they did during the first six months. Several signs, according to these executives, point to better things ahead. A strengthening of commodity prices, a firmness recorded by virtually all business analyzers which is unusual in itself, together with the fact that paper prices seemed to have reached a bottom which cannot permit of further reduction if profits are to occur, seem to be the two indices most referred to.

The markets are little changed over the past week. Bonds and ledgers, in fact the greater part of the fine paper grades, continue to give a spotty account of themselves, orders are for small tonnage and prices reflecting the slow demand. Ground woods are very dull, mills running on a curtailed production basis. News print, while making a better comparison with last year than was anticipated, still reflects the loss of advertising lineage suffered by newspapers due to slack business. Book and cover papers remain dull, according to reports, with little likelihood of change before early Fall. The board market is reported as slightly better than looked for, due to constant efforts to find new markets. Specialties are reported dull. The waste paper market is unusually quiet, collectors in this section having difficulty in finding any market whatsoever.

Container Corp. Difficulties Denied

The Container Corporation of America, through Walter P. Paepcke, president, recently publicly denied allegations that the corporation was unable to meet its obligations, a charge that had been made as the basis for a suit for appointment of a receiver which was filed in Wilmington, Del., during the past week. The suit, according to information, was filed by H. J. Thomson of Arlinton, N. J., owner of a $1,000 fifteen-year 5 per cent debenture, due in 1943. Mr. Paepcke stated that the application for a receiver for the Container Corporation of America, which maintains headquarters offices in the Conway Building, Chicago, was entirely without justification and "will be vigorously resisted." Mr. Paepcke added that "the corporation had met all maturities and interest payments regularly, has no obligations of any size maturing in the near future and is paying all current bills in the regular course of business The financial statement of the corporation to be issued about July 20, will show that at the mid-year the Container Corporation of America was in an unusually strong position financially; it had no bank loans and cash alone was almost equal to the entire total of current liabilities."

Buys Container Unit

Foreman N. Leopold, president of the Morris Paper Mills, manufacturers of folding paper boxes and box boards, announced on July 5 that the firm had purchased the suit box division of the Container Corporation of America. The Morris Paper Mills, which maintains general offices in Chicago and plants at Morris, Ill., thus becomes a dominant factor in the industry through this acquisition and, according to Mr. Leopold, plans an aggressive production and sales campaign. Transfer of all machinery, equipment and finished inventory will be completed shortly.

Paperboard Association to Meet

H. S. Adler, secretary of the Paperboard Industries Association, has issued a scheduled program covering the July meeting of the association to be held at Briarcliffe Lodge, Briarcliff Manor, Westchester, N. Y., on July 12, 13 and 14. From the Chicago offices comes the information that an executive committee dinner meeting will be held on the evening of July 12 just preceding the regular two day session. The Paperboard and Container groups will meet on the morning of July 13, the former under the supervision of F. C. Ash and the latter under the direction of M. M. Madson. With Chairman J. M. Arndt presiding, the important Container Sales Executives' luncheon will be held on the afternoon of the same day. The Folding Box group, John L. Barchard presiding, will meet on the morning of July 14, while a general session of the three groups will be held immediately following the termination of the Folding Box session. President Henry D. Schmidt will be on hand to preside over the joint session. A golf tournament is scheduled for the afternoon of July 13 immediately following the Container Sales Executive luncheon.

News of the Trade

Leo S. Altholz, chairman of the entertainment committee for the Chicago Paper Association, announces that a near record crowd will be at the Glen Oaks Country Club on July 13 to celebrate the annual golf and recreation outing which is a feature of the association's yearly program. Quite a number of mill executives are expected to be present who, with guests and members, will swell the attendance to record breaking proportions.

Bermingham & Prosser this week sent out its "Fourth Annual Calendar of Inspiration" which, along with the calendar, presents as many different colors and finishes of Peacock Folding Enamel as there are months and includes short inspirational messages which tie up with the remainder of the copy. The calendar is a "1932-33" affair and thus steals a march on those who have, for the most part, decided that calendars are only to be sent out for New Year's day.

A progressive Kalamazoo paper mill came in for recognition during the past week when Phil S. Hanna, editor of the *Chicago Journal of Commerce*, writing concerning a trip through Michigan said: "The paper business at Kalamazoo is looking up, and clusters of workmen's automobiles around the factories at Marshall, Mich., around 5 o'clock Saturday afternoon give this section an encouraging appearance. This particular plant has been working three shifts a day for the last three months."

Rheostatic Voltage Regulators Applied to Paper Machine Drives

By D. R. Shoults [1]

Today it is almost the universal practice to specify the use of voltage regulators in connection with the variable voltage type of paper machine drive. Although proper design of the motors and generators will result in an equipment with inherently good speed regulation, there are a number of factors which may combine to produce errors in speed incompatible with present day standards in the manufacture of paper.

The Use of Regulators

On sectional motor drive equipments, regulators are used; first, to maintain a constant exciter voltage; and second, to hold an even main generator voltage which may be easily changed to effect a change of speed of the machine. In connection with the so-called single motor drive, one regulator, only, is usually used to maintain a constant motor speed by operating to hold constant the voltage of a tachometer or pilot generator. The pilot generator, although usually separately excited, is of such a design that reasonable variations in the exciter voltage will not affect the speed of the drive, and an exciter regulator becomes unnecessary with this type of drive.

Regardless of the specific application of a regulator, it should be noted that in order to obtain a corrective action it is necessary that an error of some magnitude shall occur. Numerous attempts have been made to build an

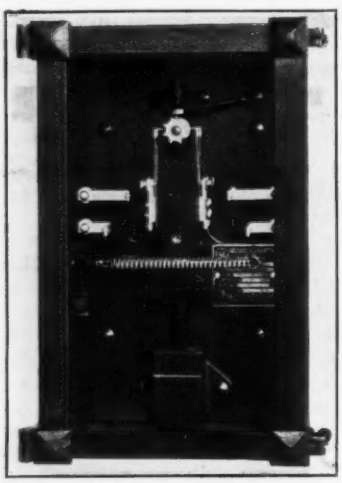


FIG. 1

Front view of rheostatic type direct current voltage regulator showing contact fingers and star wheel.

"anticipatory" regulator which will not allow errors to occur, but such attempts seem as fore-ordained to failure as past attempts have, in the business world, failed to prevent the alternate inflation and deflation of currency.

The Real Measure of Success

The real measure of a successful regulator is its ability to perform accurately and quickly in a manner understandable to the individuals in whose charge it is placed. The accuracy should be maintained irrespective of the temperature, time of day, or the direction and amount of the last correction required of the device. It must be sensitive to small errors and correct them promptly and, with errors of greater magnitude, should bring about a proportionate correction with rapidity. Although speed of correction is required it must not be obtained at the expense of stability, that is, in correcting, the device must not introduce comparable errors in the opposite direction and most important of all, must not for any reason, itself disturb an otherwise correct system.

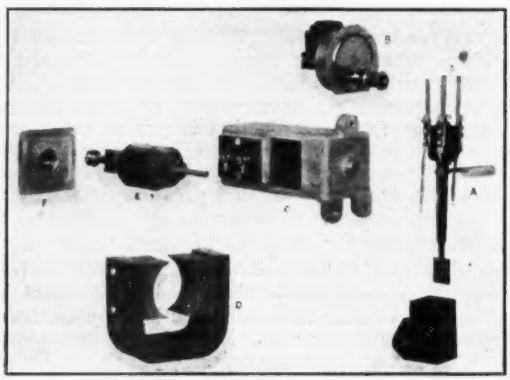


FIG. 2

Skeleton view of torque element and contact parts of direct current rheostatic type voltage regulator.

Although regulators, used by industries primarily electrical, may be more or less highly "educated" successful devices, such regulators would not be suitable for application in the majority of paper mills due to the impracticability of giving them the required attention. The successful regulator for this service must be simple in theory, sturdy in construction, and completely reliable.

One of the Earliest Regulators

One of the earliest of the regulators for voltage regulating service, consisted of a contact making voltmeter which energized, through relays, a reverisble motor which in turn operated suitable means to bring about the required correction. The correcting means may have been an induction voltage regulator to vary the voltage on an alternating current bus or a rheostat in a generator field, for either direct or alternating current use. This regulator possessed the one great advantage of simplicity in principle but, if stable, was either slow in operation or else inaccurate when adjusted for quicker response. The voltage element was usually delicate as were the contacts controlling the correcting agent.

A recent modification of the so-called "rheostatic" regulator has proven signally successful in this exacting paper mill field. Fig. 1 shows a rather unique design of the voltage element and contact parts which has retained the fundamental simplicity of the rheostatic system, with its feature of remaining dormant until a change of excitation

[1] Industrial Eng. Dept., General Electric Company.

is required. Means are added for varying the amount of correction in proportion to the requirements so that the speed of correction of large errors is equal to that of the widely known vibrating type of regulator. Inherent sturdiness is one of the most obvious features of the device. In its operation it meets the requirements for a successful regulator.

Essential Parts and Contact Parts

Fig. 2 illustrates the essential parts of the torque element and contact parts. The torque element has a construction similar to a direct current motor or to a direct current voltmeter, combining the sturdiness of the one with the accuracy and sensitivity of the other. The armature winding is placed on a soft iron core which is supported between two, high grade, ball bearings. A shaft extension through the front bearing is provided to carry the mounting for the moving contacts.

As the total movement of the armature is but a few degrees either side of its mean position, flexible leads serve to conduct the current to the armature winding.

The field, or excitation, for the armature is provided by

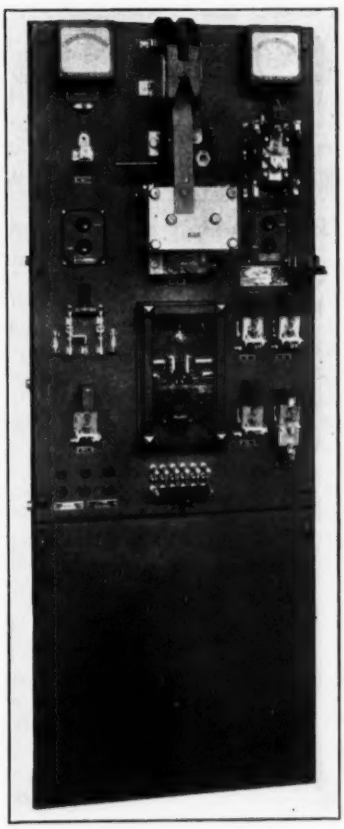


FIG. 3

Rheostatic voltage regulator used with single motor drive control.

a permanent magnet of a cobalt alloy of steel. This alloy, until recently unavailable for this purpose because of the difficulty of machining it, is the best of the known materials from which to construct magnets of this nature. It is constant in its magnetization to an extreme degree and may be removed from the element without destroying its usefulness. Soft iron pole pieces provide a means for directing the magnetic flux to the proper place around the armature.

Two pairs of flexible contact fingers are fixed to a movable block or arm carried on the armature shaft extension. Movement of the armature thus imparts a sidewise movement to the tips of the contacts. Affixed to this same arm is a spring arranged to balance the torque of the armature when the proper current flows in the winding. A paddle at the lower end of the arm is immersed in a vessel filled with oil to provide the required damping effect.

An Additional Set of Contacts

Two silver discs, one circular and one star shaped, form

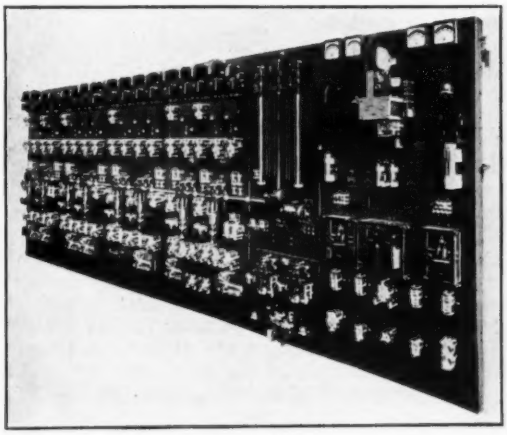


FIG. 4

General Electric sectional drive control panel including two rheostatic type voltage regulators.

an additional set of contacts. These discs are rotated continuously at four r.p.m. by an electric clock motor. The object of the rotation is twofold, first to provide a moving or wiping contact between the discs and the contacts carried by the movable arm, and second to provide an intermittent contact between the star shaped disc and its respective pair of contacts. The separation between each of the pairs of contacts is slightly greater than the diameter of the disc which rotates between the contacts so that when the regulator is in balance the fingers just clear the discs. The clearance of the fingers is individually adjustable.

With the correct current through the armature winding, the torque of the armature balances the torque of the spring, with the contacts in the mid position. With a change of current through the armature winding, the armature moves slightly until the spring again balances the armature torque. This movement causes one or the other of the front pair of contacts to engage with the points of the star wheel. The contact will be intermittent because of the star shape and will vary in length depending on the magnitude of the unbalance. If the unbalance is sufficient the finger will make continuous contact with the surface of the star wheel. The front pair of fingers control the action of a motor operated rheostat in the field of the generator or exciter so that when contact is made the rheostat is moved in the proper direction to correct the error. The varying time of contact provides for slight changes for small errors and substantially proportionate changes for greater errors. The intermittent or "notching" action allows the effect of one correction to be felt before making a subsequent one thus providing the essential stability. Stability is also increased by the reaction of the fingers on the cam tending to restore the element to the neutral position with the passage of each point of the star wheel.

The separation between the back pair of contact fingers

and the smooth circular disc is such that one of the front pair of fingers must be making continuous contact with the star wheel before the corresponding back finger touches the disc. When this finger touches it provides for the maximum desired instantaneous correction which may be made in the manner of the vibrating regulator by removing or inserting resistance in the generator field; or by providing for high speed operation of the rheostat. The unbalance required to cause this action is sufficient so that the device is not thus made unstable.

Adjustment of the Voltage

Adjustment of the voltage held by the regulator is obtained by varying the resistance in series with the armature winding. The resistance of the coil is, itself, a very small part of the total resistance in the circuit. It will be noted that if this resistance in series with the winding varies with a change in ambient temperature that the voltage and consequently the machine speed will also vary in proportion. It is important that this resistor be made of a material having practically a zero resistance temperature coefficient.

One of the very desirable features of this regulator is that all make and break contacts are sliding contacts which prevent sticking and also assure definite contact upon engagement. This feature is peculiar to this regulator.

Sensitivity and accuracy are assured in principle and practice, as the torque of the element is opposed only by the restraining spring and not, partially, by other less resilient agents. There can be no drift in the regulated voltage due to hysteresis as in solenoid structures, nor due to a variable position of the torque element, as the element always returns to the same definite position before becoming dormant.

The device may be compared to a capable, level-headed executive who keeps his mill running smoothly by determining those things which should be accomplished and then delegating the actual subordinates, thus always maintaining a clear and unbiased viewpoint so that the effort may be gauged to meet the various changing situations.

The merits of this regulator have been proven in service in plants of representative paper manufacturers.

International Envelope Plant Busy

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, July 11, 1932—The International Envelope Corporation has succeeded in keeping up an extraordinarily large output since the Government gave the word that a new postage rate would be enforced July 5. When Congress acted in the matter, adding millions upon millions of dollars to the annual income of the Government through increasing the postage on first class letters from two to three cents, officials were sent to Dayton to look over the International's plant, which is in effect, the same as the Government's envelope works, and arrangements were completed for the manufacture and distribution of the newly-stamped envelopes to the various Government distributing points, to be apportioned among the postoffices of the country.

To Stabilize World's Sulphite Market

WASHINGTON, D. C., July 13, 1932—A meeting of the European sulphite pulp suppliers was held recently in Helsingfors, for the purpose of discussing the possibility of stabilising the world market and establishing export contingents for the various countries adhering to the cartel. These discussions were to have been resumed at a meeting to be held yesterday in Stockholm.

Grand Falls Plant Makes New Record

OTTAWA, July 11, 1932—The Grand Falls hydro-electric plant of Saint John River Power Company, a subsidiary of Gatineau Power Company, has made a new high output record for a single day by producing 1,368,000 kilowatt hours of electric energy. The previous high mark was established last December when the plant generated 1,353,000 kilowatt hours.

With an installed capacity of 80,000 horsepower in four generators of 20,000 horsepower each, the Grand Falls station is the largest hydro-electric development in the Maritime Provinces. Among its customers to whom it supplies power are the Dalhousie news print paper mill of the New Brunswick International Paper Company; Fraser Companies, Limited; and the Towns of Grand Falls and Dalhousie. In the first four months of this year the Grand Falls plant generated 113,940,000 kilowatt hours, an increase of 38 per cent over its output in the corresponding period of last year, and about 50 per cent greater than the aggregate output of all the other hydro-electric plants in the Maritime Provinces.

For the twelve months ended March 31, Canadian Hydro-Electric Corporation, Limited, and subsidiary companies, including Gatineau Power Company, reported that consolidated net revenue, after deducting all prior charges, and available for dividends, was $2,508,684, or $20.07 per share on the 6 per cent first preferred stock of the Corporation, compared with $2,044,608, or $16.36 per share, in the twelve months ended March 31, 1931.

Russian Pulpwood Rejected

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., July 11, 1932.—Several Thousand cords of Russian pulpwood brought to the port terminal here recently have been rejected by the International Paper Company and it is understood will be held in storage until sold. The discarded quantity is estimated at more than 5,000 cords. It is probable that the Amtorg Trading Company will be obliged to meet the storage bill until some disposition of the cargo is made inasmuch as they serve as agents for the Russian authorities.

About 6,800 cords of the imported product arrived here late in June on two large ocean vessels and unloading was held up for several days while representatives of the paper company inspected it and discarded a considerable portion which proved unsatisfactory. About 21 carloads were accepted from the first ship but the entire cargo of the other is being laid out on the docks instead of being hauled to freight cars for delivery to the mills in Northern New York.

It is possible that the pulpwood may be sold to other customers pending a settlement of the controversy over the acceptance of the cargo.

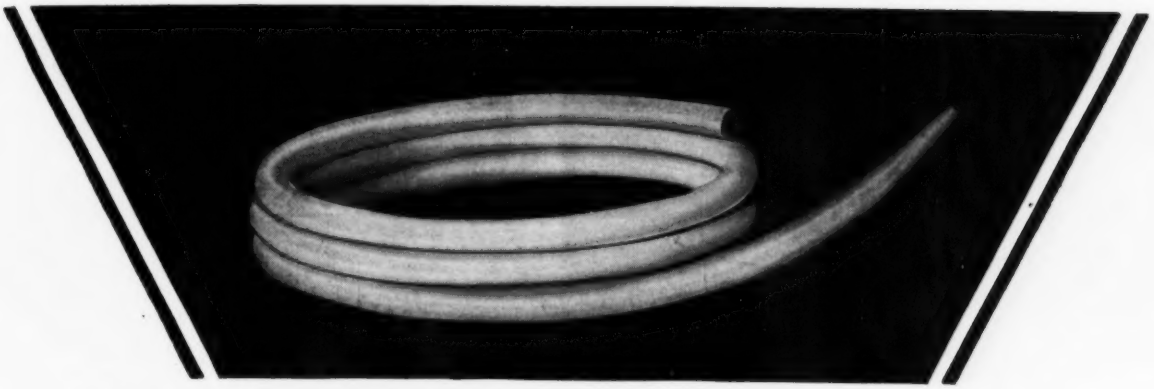
Joins United Manufacturing Co.

[FROM OUR REGULAR CORRESPONDENT]

Springfield, Mass., July 11, 1932.—James R. Hinkson, formerly with the Hampden Glazed Paper and Card Company, has joined the organization of the United Manufacturing Company, whose mill is located in this city and whose general office is at 200 Madison avenue, New York City.

Mr. Hinkson will have entire charge of the following departments: plated, glazed, flinted and fancy papers, specialty duplex, greeting card papers and heavyweight decorated papers and covers.

Mr. Hinkson will make his headquarters at the mill of the United Manufacturing Company at 168 Birnie avenue.



With or Without Soft Nozzle—

GOODYEAR SANITARY HOSE Leads All

The most useful and economical hose around any mill — say those who are using it — is this Goodyear "Style M" Sanitary Hose.

It stands dragging over brick or concrete. It stands being run over by trucks, and continued flexing and bending. It is toughly resistant to acids and other process liquids. It can be used for either steam or water.

If you order it *with the soft nozzle built in*, you will find it a valuable protection against damage to screens.

A fine hose, capable of long, dependable service in your hardest mill usage, Goodyear "Style M" Sanitary Hose is recommended by the G. T. M. — Goodyear Technical Man.

The G. T. M.'s recommendations on Belting, Hose, Packing and other Mechanical Rubber Goods are saving money in many mills. *Goodyear now also supplies the famous Goodyear Rubber Rollers for Paper Mill service.* You can get in touch with the G. T. M. simply by writing to Goodyear, Akron, O., or Los Angeles, Cal., or your nearest Goodyear Mechanical Rubber Goods Distributor.

TUNE IN: Goodyear invites you to hear the Revelers Quartet, Goodyear Concert-Dance Orchestra and a feature guest artist every Wednesday night, over N.B.C. Red Network, WEAF and Associated Stations

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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Mount Wolf, Pa.—The Superior Paper Products Company, Carnegie, Pa., manufacturer of corrugated paper boxes and containers, has plans nearing completion for the construction of a new branch plant on site recently selected at Mount Wolf. It will be one-story, brick and steel type, reported to cost close to $40,000, with equipment. Erection is scheduled for completion in the fall. The plant will give employment to more than 50 persons.

New York, N. Y.—The Able Paper Box Manufacturing Company, New York, has leased space in the building at 193-95 Mercer street, and will establish a new plant for manufacture of paper boxes and containers at that location. It is proposed to have unit ready for service at an early date. The company was organized recently by Isadore Felder, 1133 Clarkson avenue, Brooklyn, N. Y., and Harry J. Harber, 137 West Tremont avenue, Bronx, New York.

Erie, Pa.—The Hammermill Paper Company, East Lake road, has rejected bids recently received for the construction of proposed new addition to mill, consisting of one-story, reinforced-concrete unit, 130 x 260 feet. It is understood that new bids will be asked on general contract in the fall. The structure is reported to cost close to $100,000, with equipment.

Amite, La.—The Gulf States Crate Company, now being organized with a capital of $250,000, by H. S. Weigle of the Amite Bank and Trust Company, Amite, and associates, is considering the early construction of a new plant in the vicinity of Amite for the production of a line of fiber board products, including strawberry cups and allied specialties. Plant will consist of main one-story unit and will be equipped for initial output of about 100 cup units per minute. Department will be provided for developing the finished product in colors. Plant is reported to cost about $60,000, with equipment. Site will soon be secured.

Morris, Ill.—The Morris Paper Mills, Morris, manufacturers of cardboard stocks, colored box boards for suit boxes, etc., has concluded negotiations for the purchase of a division of the Container Corporation of America, Inc., 111 West Washington street, Chicago, Ill., specializing in the manufacture of suit boxes and kindred large cardboard boxes and containers. The division at one time was operated at the Anderson, Ind., plant of the selling company, but recently was removed to company plant at Chicago. The purchase includes machinery and equipment, as well as other assets, exclusive of plant or property. The Morris company plans to transfer the unit to its mills at Morris, where production will be concentrated in the future.

Brooklyn, N. Y.—The Lorraine Fibre Mills, Inc., recently organized with a capital of 200 shares of stock, no par value, by Alexander Berger, 450 Seventh avenue, New York, and associates, is said to be planning early operation of a new local plant for the manufacture of fiber board specialties. Robert P. Berman, 775 East 175th street, Bronx, New York, is interested in the new company.

Akron, Ohio—The Palmer Match Company, Akron, is arranging a list of equipment to be installed at its plant in connection with establishment of a new division for the manufacture of book matches, recently referred to in these columns. Certain special machinery will be made at the local machine shops of the company. A paper converting department will be installed for the production of paper books for match containers. The entire program is reported to cost over $100,000, with equipment. J. L. Walker is president.

Franklin, Ohio—The Cheney Pulp and Paper Company has awarded a contract to the Dayton Structural Steel Company, Dayton, Ohio, for structural steel framing for new two-story addition to mill on Anderson street, to replace a unit recently destroyed by fire. It is proposed to rebuild by day labor and work on superstructure will begin at early date. The structure will be 60 x 100 feet, and is reported to cost over $50,000, with equipment. Howard L. Cheney heads the company.

Indianapolis, Ind.—The National Paper Stock Company, 330 West Michigan street, has awarded a general contract to William E. Mick, Inc., 1020 East Michigan street, for the rebuilding of three-story paper stock storage and distributing unit, recently damaged by fire. Work will be placed under way at once. Estimated cost not announced. H. E. Riley is manager.

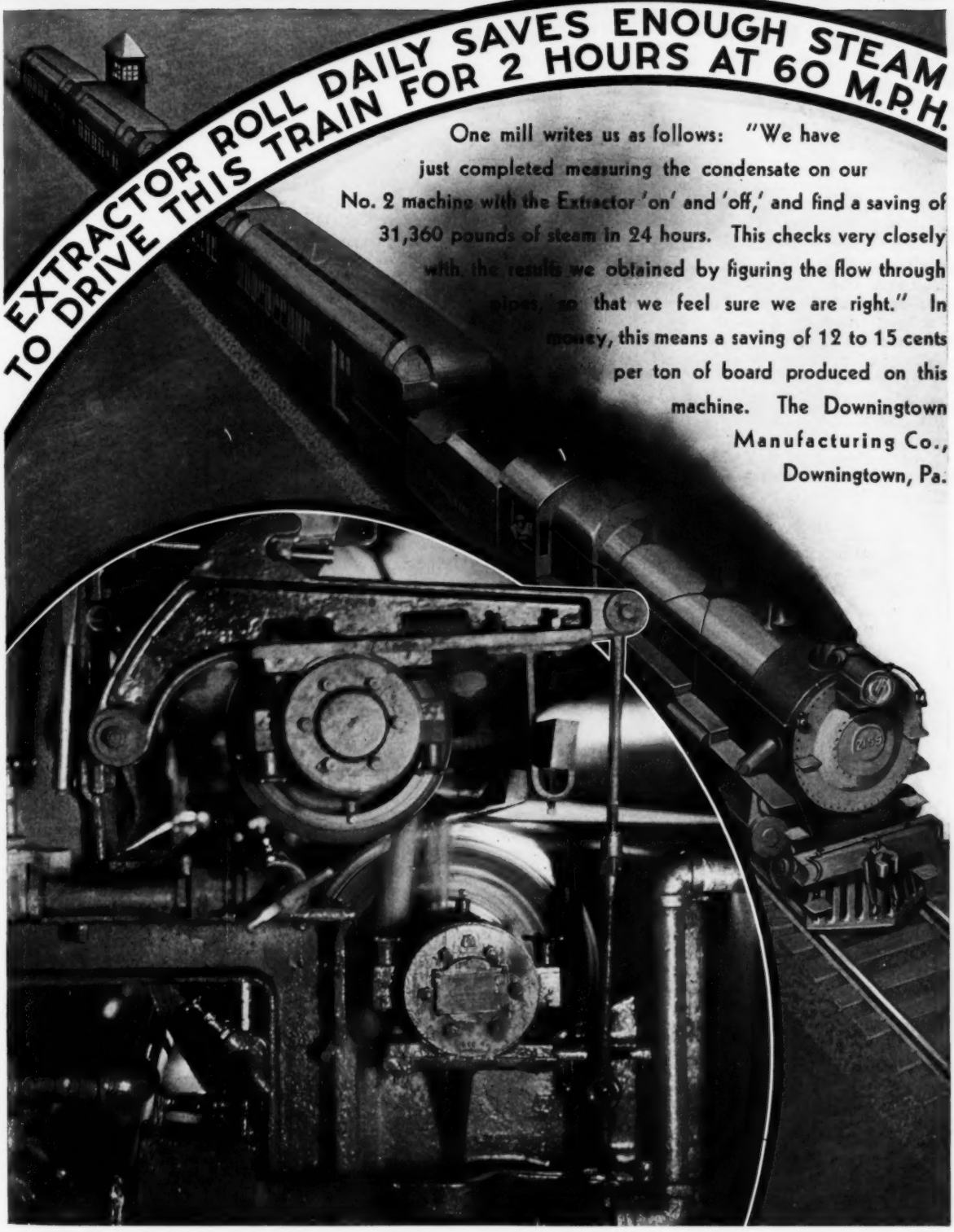
New York, N. Y.—The Herald Paper Box Company, 42 Green street, has leased space in the building at 131-33 Wooster street, and will occupy for new paper box and container plant. Present works will be removed to new location and expansion carried out.

Buffalo, N. Y.—The du Pont Rayon Company, River road, manufacturer of cellulose rayon products, has recently resumed operations at its local mill, following curtailment for a number of months. Over 250 operatives have been reinstated. It is expected to continue production for an indefinite period.

New York, N. Y.—The Standard Pulp Products, Inc., Grand Central Terminal Building, a Delaware corporation, has arranged for an increase in capital stock from $1,500,000 to $5,000,000, for general expansion.

St. John, N. B.—Following recent purchase of the plant and property of the Nashwaak Pulp and Paper Company, Ltd., Union Point, near St. John, by Port Royal Pulp and Paper Company, Ltd., Quebec City, Que., new owners are said to be planning improvements in the mill, including equipment repairs and replacements. It

DOWNINGTOWN



One mill writes us as follows: "We have just completed measuring the condensate on our No. 2 machine with the Extractor 'on' and 'off,' and find a saving of 31,360 pounds of steam in 24 hours. This checks very closely with the results we obtained by figuring the flow through pipes, so that we feel sure we are right." In money, this means a saving of 12 to 15 cents per ton of board produced on this machine. The Downingtown Manufacturing Co., Downingtown, Pa.

is expected that it will be a number of months before the plant is placed in operation. A consideration of close to $250,000, was given for the property; the sales does not include the large timber holdings of the Nashwaak company on the Nashwaak and Mirarichi Rivers.

St. Andrews East, Que.—The Canada Paper Company, Montreal, Que., with main plant at Windsor Mills, Que., is planning early operations at the former mill of the Western Quebec Paper Mills, Ltd., St. Andrews East, recently acquired. The plant has been closed for a number of years and alterations and improvements will be made, including machinery replacements. The new owner will use the plant for the production of tissue papers, absorbent waddings and kindred paper stocks.

Erving, Mass.—The Erving Paper Mills are considering tentative plans for a new addition to plant, consisting of one-story unit designed for increased capacity. Estimate of cost and details of structure will be determined in the near future. Raymond E. Palmer, 58 Suffolk street, Holyoke, Mass., is engineer, in charge.

Chicago, Ill.—The Cardinell Vellum Manufacturing Company, 15 Label street, Montclair, N. J., manufacturer of vellum, tracing and kindred paper stocks, is said to have plans maturing for proposed new plant at Chicago, consisting of a one and two-story structure, reported to cost approximately $60,000, with equipment. Holabird & Root, 333 North Michigan avenue, Chicago, are architects.

Fitchburg, Mass.—Crocker, Burbank & Co. have approved plans for improvements and alterations in pipe and mechanical shop. Work will be placed under way at once. Estimated cost has not been announced.

Chester, W. Va.—The E. C. Ottis Company, manufacturer of heavy roofing papers, etc., is operating at its new local mill, recently completed, giving employment to a sizable working force. The plant takes the place of a mill at Toronto, Ohio, destroyed by fire a number of months ago. It is said that orders on hand insure good production schedule for some weeks to come. At a later date it is proposed to carry out expansion at the mill, for increased capacity in different departments.

New York, N. Y.—The Abbot Packing Box Company, Inc., recently organized by Nathaniel Duetsch, 1015 Longwood avenue, Bronx, and associates, is said to be planning operation of a local plant for the manufacture of corrugated shipping boxes and kindred containers. The new company will operate with a capital of $20,000.

Westbrook, Me.—S. D. Warren Company, 89 Broad street, Boston, Mass., is said to be considering the early rebuilding of storage and distributing plant at Westbrook, recently destroyed by fire. The new structure is reported to cost close to $30,000, with equipment.

Rochester, N. Y.—Following recent organization of the International Latex Corporation by local interests, to manufacture fiber products, etc., lately referred to in these columns, the same organizers have formed two affiliated companies to engage in the same line, under the names of the American Latex Corporation and National Latex Corporation, respectively. Each company will operate with a capital of 200 shares of stock, no par value. Alfred W. Dunbar, 31 Exchange street, Rochester, is one of the organizers of all three companies.

Combined Locks, Wis.—The Combined Locks Paper Company is proceeding with superstructure for three new one-story additions to mill, 48 x 72 feet, 40 x 50 feet, and 60 x 180 feet, for which general contract was recently let to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., as reported in these columns. It is proposed to push the new units to completion and have ready for occupancy at an early date. The first two mentioned structures will be used for processing and similar technical service; the largest, or last noted building, has been designed for storage and distributing purposes.

New Companies

New York, N. Y.—The Hangerette Folding Box Distributing Corporation has been incorporated with a capital of 50 shares of stock, no par value, to manufacture and deal in folding paper boxes, cartons and other containers. The incorporators include M. J. Cahn, 200 Fifth avenue, and Lester Grossman, 291 Broadway, New York. The last noted is representative.

Philadelphia, Pa.—The Russell A. Ogden Company has been incorporated with a capital of $25,000, to manufacture and deal in commercial paper products, stationery, etc. The incorporators are Russel A. Ogden, Sims and Overhill avenues, Somerton, Philadelphia; and Lloyd H. Ogden, 911 Bell avenue, Yeadon, Pa.

Muncie, Ind.—The Negley-Zeigler Corporation, Muncie, has arranged for a change of name to the Londy Card Corporation, at same time increasing capital to $25,000 and 200 shares of stock, no par value.

NewYork, N. Y.—The Great Eastern Packing and Paper Stock Corporation has been incorporated with a capital of $100,000 and 1000 shares of common stock, no par value, to manufacture and deal in heavy and other paper stocks, wrapping and other papers. The incorporators include Paul Joseph White and Harry Pickess, 11 West Forty-second street, New York. The company is represented by Frank V. McMahon, 22 East Fortieth street, New York.

New York, N. Y.—Corbett-Gard, Inc., has been incorporated with a capital of $20,000, to manufacture cellophane products, operating a converting plant. The company is headed by Walter E. Gard and Thomas H. Corbett, 216 West Thirtieth street; and H. A. Shelton, 108 East 38th street.

Philadelphia, Pa.—The Acowood Company has been incorporated with a capital of 2500 shares of stock, no par value, to manufacture wood fiber and fiber products of various kinds. The incorporators are Harry L. Acomb, 502 Beechtree lane, Wayne, Pa.; and James D. I. Wood, 507 Beechtree lane, Wayne. Last noted is treasurer.

New York, N. Y.—The Multitone Paper Sales Corporation, New York, has arranged for a decrease in company capitalization from $350,000 to $25,000.

Boston Paper Market Conditions

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 11, 1932—A more cheerful sentiment prevails in the Boston wholesale paper market, although the actual volume of sales has been hardly better than fair. Reports, as frequently, vary, with some noting a rather good business and many others only an average amount or below normal. While there is some demand for bonds and ledgers, it is not a great improvement over previous movement. There is, perhaps, less interest in paper for advertising purposes, such as direct mail, although some call continues. The general feeling, among dealers in both fine and wrapping papers, however, is that the worst of the depression is history and that the main trend will now be along constructive lines. The box board market shows a fairly good demand for material, although there is much room for improvement. The demand for paper specialties in a number of instances offsets the lesser call for the standard lines of paper, ptrticularly wrapping paper. The complexion of the paper stock market remains dull locally. It is reported that conditions in this portion of the industry in England are a little better, distinctly so over those of two months ago.

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POWER EXPOSITION

As a confirmation of the reports from a number of firms that business is showing an improvement comes the announcement that 293 manufacturers of power producing machinery, mechanical devices for power transmission, precision instruments for the control of combustion, pressure, volume, flow and other measurable entity, material handling equipment, heavy electrical machinery, etc., etc., will stage exhibits in the forthcoming Tenth National Exposition of Power and Mechanical Engineering at the Grand Central Palace during the week from December 5 to 10 which is coincident with the annual meeting of the American Society of Mechanical Engineers. These manufacturers are now preparing exhibits and the large attendance which is expected of representatives from every state in the Union, as well as many foreign countries, will find things of considerable information and inspiration, ideas which will be of tremendous assistance to them in their work and plant operations. During the past two years, the interval since the Ninth Exposition, a very considerable amount of research work has been carried on and completed and the results of this research work will be shown in this Exposition.

At the time when this exposition was first organized 4½ pounds of coal were necessary per hour to maintain a kilowatt of electric energy. The developments in mechanical industries, largely inspired by the exposition, have resulted in a coal consumption of 1 3/10 pounds to produce the same amount of energy today. There is an earnest promise in this that out of new developments which will be shown in the forthcoming exposition greater economies and efficiency will come to the national industries.

The announcement states that at the present time the exposition is equal in size to its immediate predecessors and it is expected that many more firms will be included as exhibitors.

The Exposition Advisory Committee comprises I. E. Moultrop, Chairman, of Edison Electric Illuminating Company of Boston; with Homer Addams, Past President, American Society of Heating and Ventilating Engineers; N. A. Carle, manager, Pacific Electric and Manufacturing Company; Fred Felderman, Past National President, National Association of Stationary Engineers; C. F. Hirshfeld, Chief, Research Department, Detroit Edison Company; O. P. Hood, Chief Mechanical Engineer, U. S. Bureau of Mines; C. N. Lauer, President, The American Society of Mechanical Engineers; John H. Lawrence, Thomas E. Murray Company; Fred R. Low, Past-President, The American Society of Mechanical Engineers; Glenn Muffly, President, American Society of Refrigerating Engineers; David Moffatt Myers, Consulting Engineer; and Charles F. Roth and Fred W. Payne as co-managers of the Exposition.

ACID-POLLUTED AIR AND PAPER

The Bureau of Standards, Washington, D. C., has reported the results of research upon the effect of small amounts of sulphur dioxide upon current commercial book and writing papers. Fourteen different commercial book and writing papers were exposed for ten days to the action of air containing 2 to 9 parts of sulphur dioxide per million. At the end of that time it was found that the papers had suffered to some extent a considerable decrease in folding strength, forty per cent was noticeable in some cases, and they had undergone changes in their chemical characteristics.

The effect of sulphur dioxide released into the atmosphere by the combustion of modern fuels has been the subject of many investigations. A study of statistics obtained from reports of these investigations, covering 15 American and European cities showed air pollutions ranging from 0.20 to 3.00 parts sulphur dioxide per million and an annual precipitation of sulphuric acid ranging from 11 to 190 tons per square mile. Additional evidence of the increasingly polluted nature of modern urban atmospheres is given by a recent investigation by the Bureau of the causes of the so-called "winter damage" or the rotting of damp cotton fabric upon exposure to outside air experienced by laundries throughout New England. Atmospheric sulphur dioxide, which is oxidized on the fabric to sulphuric acid, was found to be the cause of the phenomenon.

The initial quality of the papers was apparently no measure of their resistance to the action of sulphur dioxide since some of the low-grade papers, unsuitable for permanent record use, as determined by the usual tests, suffered less from exposure to this gas than did high-grade papers. This fact adds to the evidence in favor of the modification of library ventilating systems so as to eliminate from the library air, as far as practicable, any acid pollution introduced by the admission of outside air.

The research reported is one phase of a general study of library storage of records being made at the Bureau

of Standards with the assistance of a fund granted for the purpose to the National Research Council by the Carnegie Corporation. The report is contained in Research Paper No. 407, entitled "The Deteriorative Effect of Sulphur Dioxide upon Paper in an Atmosphere of Constant Humidity and Temperature". Copies may be obtained from the Superintendent of Documents, Washington, D. C.

TAPPI Alkaline Pulping Committee Named

The membership of the alkaline pulping committee of the Technical Association of the Pulp and Paper Industry has just been announced as follows: H. R. Murdock, Champion Fibre Company, Canton, N. C., Chairman., M. W. Bray, Forest Products Laboratory, Madison, Wis., F. J. Cirves, Filer Fibre Company, Filer City, Mich., R. L. Davis, Institute of Paper Chemistry, Appleton, Wis., Paul Hodges, Gulf States Paper Company, Tuscaloosa, La., W. P. Lawrence, Champion Fibre Company, Canton, N. C., B. deB. Millidge, Howard Smith Paper Company Ltd., Cornwall, Ont., H. W. Morgan, Oxford Paper Company, Rumford, Maine., H. A. Morrison, Oliver-United Filters Inc., Chicago, Ill., W. E. Piper, Dorr Company, New York, N. Y., W. E. Webster, J. O. Ross Engineering Corporation, New York, N. Y., and H. E. Whitaker, Mead Corporation, Kingsport, Tenn.

The committee is studying several interesting problems relative to the soda, sulphate, semi-chemical and deinking processes, and is planning an excellent program for the annual meeting of the association. Anyone in the industry who may be interested in participating in the work of this committee should write to H. R. Murdock.

Fraser Co. Plan Opposed

MONTREAL, Que., July 11, 1932—A Protective Committee has been formed in opposition to the plan of reorganization advanced for the Fraser Companies, Ltd. The members include Henry Weinfield, K.C., of Montreal; Hamilton Cassels and Ernest A. Harris, both barristers of Toronto; and Arthur Jones, of Montreal. Mr. Weinfield in a statement he has issued says, "The whole scheme of the proposed reorganization is to raise another $1,000,000 either from the public or from the bank. If the bank advances this money, it is to be given a prior lien over bondholders, including the secured noteholders. The Fraser Companies show a loss of over $5,000,000, and yet the company with its bankers ask the holders of secured notes to waive their priority and to allow the same group to be in control." He thinks that at the very least these noteholders should have adequate representation on the board and on the personnel of the voting trustees.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 13, 1932—The Government Printing Office has received the following bids for 2,525 pounds of offset paper; The Whitaker Paper Company, at 5.6 cents per pound; R. P. Andrews Paper Company, 6.72 cents; Reese & Reese, Inc., 6.49 cents; The Old Dominion Paper Company, 6.9 cents; Mathers-Lamm Paper Company, 6.5 cents; Walker, Goulard Plehn Company, Inc., 6.75 cents; The Aetna Paper Company, 5.11 cents; Dill & Collins Company, 6.5 cents less 2 per cent; Barton Duer & Koch Paper Company, 6.75 cents; and Virginia Paper Company, Inc., 6.5 cents.

Census of Wall Paper, 1931

WASHINGTON, D. C., July 11—The Bureau of the Census announces that, according to a preliminary tabulation of data collected in the Census of Manufactures taken in 1932, the production of wall paper in the United States in 1931 by establishments engaged primarily in the manufacture of this product amounted to 292,016,000 rolls, valued at $19,634,000 (at f. o. b. factory prices), a decrease of 22 per cent in quantity and of 35 per cent in value as compared with 373,893,950 rolls, valued at $30,004,881, reported for 1929, the last preceding census year.

Statistics for 1931, with comparative figures for 1929, are given in the following table. The figures for 1931 are preliminary and subject to revision. They are based on actual returns from manufacturers who contributed the greater part of the total value of products for the industry at the census for 1929, and on estimates for a few manufacturers who reported for 1929 but have not yet made their returns for 1931. (See "Note" below.)

Summary for the Industry: 1931 and 1929

[As the 1931 items are based in small part on estimates, they are given in round figures.]

	1931	1929	Per cent of decrease (—)
Number of establishments	50	56	*
Wage earners (average for the year)[1]	3,660	4,705	—22
Wages[2]	$ 3,874,000	$ 5,731,932	—32
Cost of materials, fuel, and purchased electric energy[2]	8,672,000	13,480,205	—36
Products, total value[2]	19,636,000	30,007,649	—35
Wall paper			
Quantity (rolls)	292,016,000	373,893,950	—22
Value	$19,634,000	[3]$30,004,881	—35
Other products, value	2,000	2,768	—28
Value added by manufacture[4]	10,964,000	16,527,444	—34

* Per cent not computed where base is less than 100.

[1] Not including salaried officers and employees. The average number of wage earners is based on the number reported for the several months of the year. This average probably exceeds somewhat the number that would have been required for the work performed if all had been continuously employed throughout the year, because of the fact that manufacturers report the number employed on or about the 15th day of each month, as shown by the pay rolls, usually taking no account of the possibility that some or all of the wage earners may have been on part time or for some other reason may not actually have worked the entire month. Thus it becomes necessary to give equal weight to full-time and part-time wage earners in calculating the average, and therefore the average may overstate somewhat the amount of full-time employment. For this reason the quotient obtained by dividing the amount of wages by the average number of wage earners can not be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1931 and 1929, the possibility that the proportion of part-time employment was larger in one year than in the other should be taken into account.

[2] Manufacturers' profits can not be calculated from the census figures because no data are collected for certain expense items, such as salaries, interest on investment, rent, depreciation, taxes, insurance, and advertising.

[3] Revised.

[4] Value of products less cost of materials, fuel, and purchased electric energy.

Note.—As the purpose of this preliminary report is to make the census statistics available at the earliest possible date, thus insuring their maximum current value, they have been compiled from returns which have not received the careful scrutiny and revision which will be given them before the publication of the final reports, and are based in small part on estimates for a few small establishments which have not yet made their returns or whose returns were incomplete. For these reasons, some of the items in this report may differ appreciably from the corresponding items in the final report for the industry, but it is believed that these differences are not of sufficient importance to have any material effect on the value of the statistics for practical purposes.

Orders Small for Swedish Sulphite

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 13, 1932.—Orders placed for chemical pulp with Swedish mills continue small, those calling for shipments in excess of 200 metric tons being exceptions according to reports to the Department of Commerce. Sulphate manufacturers enjoy some advantage over those engaged in the sulphite field, inasmuch as the prices for their product are holding firm.

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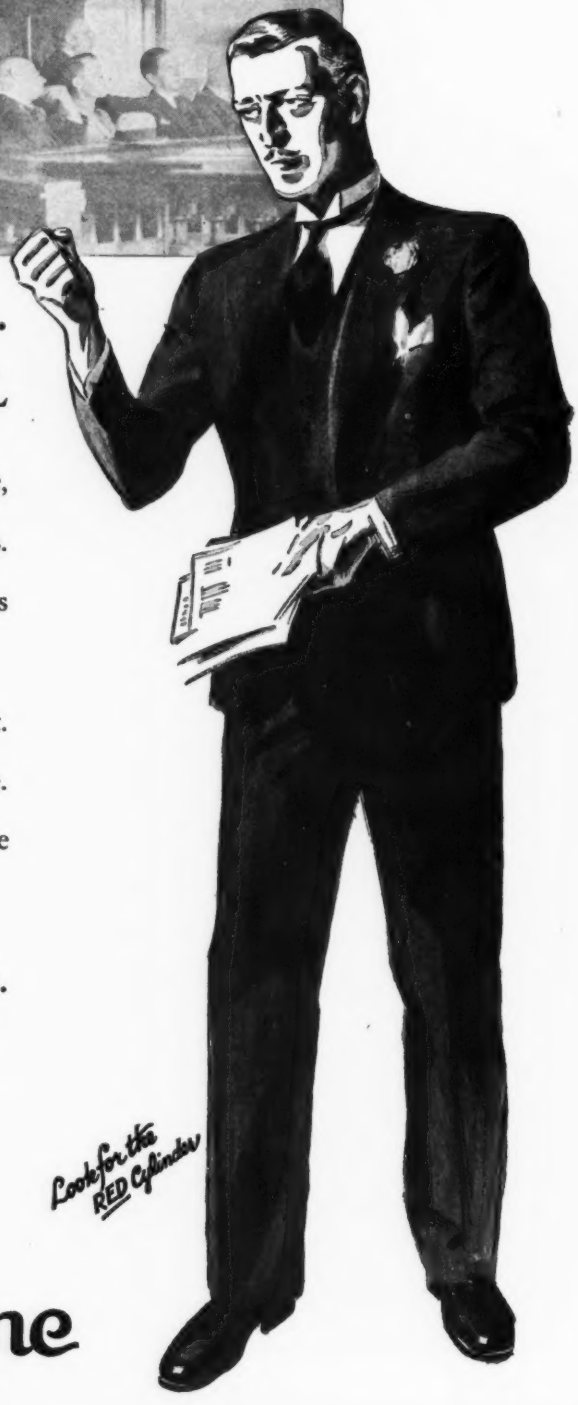

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Liquid Chlorine

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members ot the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

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Payment should be made upon receipt of invoice.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Alkaline Processes

Pulp from Resiniferous Wood. Heinrich Heimann, Erich Opfermann, Irnfried Uetersen, Kreis Bitterfeld and Alfons Mayerl assignors to I. G. Farbenindustrie A. G. U. S. pat. 1,840,162 (Jan. 5, 1932)—A pulp nearly free from resins and containing a high percentage of alpha-cellulose is obtained from materials such as pine wood shavings by opening up the starting material with nitric acid, then treating it with a boiling caustic alkali solution, bleaching with chlorine, again treating with dilute caustic soda and finally subjecting it to a further bleaching.—A. P.-C.

Pulp from Material Such as Wood, Straw or Esparto. Heinrich Heimann, Irnfried Peterson, Kreis Bitterfeld, Alfons Bayerl and Hermann Seefried assignors to I. F. Farbenindustrie A. G. U. S. pat. 1,840,198 (Jan. 5, 1932).—The material is impregnated with nitric acid, excess acid is removed and the impregnated material is allowed to stand until a sample is disintegrated completely when boiled at ordinary pressure for 30 to 60 min. with an aqueous solution of caustic soda of about 2 per cent strength. The product thus obtained is suitable for making cellulose esters or ethers, etc.—A. P.-C.

High-Grade Chemical Pulp. George A. Richter assignor to The Brown Co. Can. pat. 316,694, (Nov. 3, 1931).—Chipped wood is treated with a solution of sulphuric acid to effect reaction, more particularly on the pentosans of the wood. The chipped wood is then washed and cooked in an alkaline liquor containing sodium sulphide to effect fiber liberation. The pulp produced is high in alpha-cellulose and low in pentosans.—A. P.-C.

Production of Vegetable Fiber. Gaston Averseng. Fr. pat. 709,495 (April 19, 1930).—Vegetable fiber is obtained by treating crude esparto in a liquor containing 2 to 5 per cent of an alkali or alkaline-earth hydrate or carbonate at 90° to 130° C. Sodium fluoride may be added to the liquor to sterilize the fiber.—A. P.-C.

Production of Pulp for Fiberboard and Paper. Dell F. Harbaugh assignor to Improved Products Co. U. S. pat. 1,842,984 (Jan. 26, 1932).—"Reducing agents" such as lime and caustic soda are used in aqueous solution together with carbon disulphide for the purpose of treating wheat straw or the like.—A. P.-C.

Production of Wood Pulp. Linn Bradley and Edward P. McKeefe assignors to Bradley-McKeefe Corp. U. S. pat. 1,843,704 (Feb. 2, 1932).—Wood is cooked in a liquor containing substantial quantities of caustic soda, sodium sulphide and sodium sulphite (the sodium oxide content of the sulphite being greater than the sodium oxide equivalent to the caustic soda).—A. P.-C.

Refined Wood Pulp. George A. Richter assignor to The Brown Co. Can. pat. 316,693 (Nov. 3, 1931).—Chipped wood is cooked in water for 2 to 4 hours at 300° to 400° F., washed and then cooked for 2 to 4 hours at 300° to 350° F. in a kraft liquor containing 1.5 to 2.0 lbs. of alkali per cu. ft., as caustic soda and sodium sulphite but calculated as sodium oxide, to complete fiber liberation. The resulting pulp is high in alpha-cellulose, low in pentosan content and has low solution viscosity.—A. P.-C.

Paper Pulp from Hard Woods. John Traquair and Francis G. Rawlings assignors to The Mead Research Engineering Co. U. S. pat. 1,843,467 (Feb. 12, 1932).—Chestnut, oak or gum wood is cooked in a liquor containing an alkali metal sulphite and the salt of a weakly ionized polybasic acid such as sodium bicarbonate to effect a partial defibering, and further disintegration to pulp is then effected by treatment with a chlorinating agent such as chlorine solution, which is followed by bleaching to produce a pulp suitable for the manufacture of high-grade papers.—A. P.-C.

Pretreatment of Fibrous Materials for Production of Paper Pulp, Mill Boards, Cardboard, etc. A. G. fur Halbzellstoff Industrie. Brit. pat. 364,708 (Oct. 18,

1930).—The raw materials suspended in water at 60 deg. to 88 deg. C., to which chemicals stable in the tropics, *e.g.*, slaked lime, caustic soda or sodium sulphate, may be added if desired, are rapidly rotated by a stirrer having cutter arms acting against radial projecting cutting members fixed to the inside wall of the container.—A. P.-C.

Simultaneous Production of Water-Soluble Tanning Substances and Paper. Reuben B. Robertson assignor to The Champion Fibre Co. U. S. pat. 1,844,600 (Feb. 9, 1932).—Various details of apparatus and procedure are described for extracting tanning substances from materials such as oak, hemlock or chestnut wood or bark, and for forming the fiber into paper.—A. P.-C.

Process for the Manufacture of a Very Valuable Pulp from Wood, Straw, Grasses and Other Plants, Especially Such Which are Difficult or Impossible to Decompose by Means of the Ordinary Sulphite Process. Ernst Schmidt, Arnau. Czech. pat. 37,096. The material is treated with one or more metals, with the exception of alkali or earth alkali metals, as for example, iron, silver, copper, aluminum, zinc, tin, lead, cobalt, nickel, chromium, manganese, and their salts or oxides. For example, 100 cubic meters of sulphite cooking acid is added to 20 to 100 kilograms of aluminum sulphate, nickel sulphate, zinc sulphate or also several of these salts simultaneously.—J. F. O.

Process and Device for the Cooking Out of Cellulose from Plants and Industrial Wastes. Procedes Navaare, Lyon, France. Czech. pat. 37,444. The material to be treated is subjected to the action of a sodium liquor in an enclosed circulation system and in such a manner that the strongest liquor comes in contact with the material which is most decomposed. The material is then washed with water which is free from the salts of the earth alkalies.—J. F. O.

Process for the Recovery of Clean Paper Stock from Old Printed Papers from the Use of Waste Liquors from the Cooking of Pulp. Robert Weber Akt. Ges. Drentwede. Ger. pat. 524,851 (April 19, 1921). The waste liquor is treated with earth alkali hydroxides, for example, calcium hydroxide, before its use in the process. According to claim number 2, the acid waste liquors, for example, sulphite waste liquor, is treated with alkali salts, for example, alkali sulphate. According to claim number 3, the alkali waste liquors, for example sulphate or soda waste liquors, are calcined and the water soluble residue is then used for the treatment of the old paper.—J. F. O.

Process for the Recovery of Cellulose from Fiberous Plant Materials by Means of Chlorine with Pre-treatment of the Raw Material with a Softening Agent and a Defibering Before the Chlorination. Verein für Chemische Industrie Akt. Ges., Frankfurt a.M. Ger. pat. 533,647 (April 26, 1927). The invention is characterized by a double pre-treatment with bases and acids. For example; 200 grams of chipped beech wood, bamboo, straw and similar materials, are treated with a liter of 1.5 per cent solution of sodium hydroxide for 8 hours at a more or less increased temperature. After the separation from the liquor, the material is washed, and if necessary, subjected to a treatment in a diffusion battery with 0.1 to 2 per cent solution of sulphuric acid without any pressure and at usual or increased temperatures. After sufficient action, the wood mass is separated from the acid, defibered in an ordinary manner. It is then agitated with dilute sodium hydroxide under constant addition of chlorine gas for one hour, and if necessary this treatment is repeated until a pure white color is attained.—J. F. O.

Process for the Manufacture of Pulp by Alkaline Means. Noviston Akt. Ges., Berlin. Ger. pat. 532,222 (Aug. 30, 1929). Calcium cyanamide is used as the decomposition means instead of or besides alkali or alkali sulphite. For example, 100 kilograms of straw are treated with 2 kilograms calcium cyanamide, 2 kilograms of sodium sulphite and 2 to 5 kilograms of sodium hydroxide in the form of a liquor with a beaume of 2 deg. It is heated without pressure to 70 to 80 deg. C. and held at this temperature for 4 till 6 hours. The material is then decomposed so much that it can be further treated in the usual manner.—J. F. O.

Process for the Manufacture of a Highly Purified Wood Pulp Free from Pentosans. I. G. Farbenindustrie Akt. Ges., Frankfurt a.M. Ger. pat. 539,938 (March 14, 1929). The pulp is first digested at room temperatures for three hours with a five per cent solution of sodium hydroxide and then pressed or centrifuged from the mother liquor so that 15 per cent NaOH, calculated on the weight of the stock, remains in the stock. This mass is then diluted with water or steam and cooked, carefully washed, bleached, and treated further.—J. F. O.

Process for the Manufacture of Pulp. Verein für Chemische Industrie Akt. Ges., Frankfurt a.M. Ger. pat. 534,057 (Sept. 11, 1926). Addition to Ger. pat. 507,869. In further carrying out the main patent 507,869, the raw material in the form of board is treated with the decomposition means. According to claim number 2, the raw material as an endless sheet of board is carried on a belt through chlorinating chambers, heated if necessary, and then passed through a washing device, changing one to the other—J. F. O.

Process for the Manufacture of a Pulp or Stock Which Breaks Up Easily in Water, for the Manufacture of Paper. Hans Wrede, Berlin. Ger. pat. 537,335 (Oct. 31, 1930). Grape sugar (dextrose), invert sugar, xylose sugar solution, waste liquors containing sugar obtained from beet, cane and grape sugar or dextrose manufacture is added in a dissolved form in a quantity of at least 0.1 per cent of air dry stock.—J. F. O.

Process for the Manufacture of Hydrated Pulp. Schieritz Producten G.m.b.H., Liqu. Ger. pat. 539,257 (June 17, 1927). Products of combustion such as the ash of brown coal is added.—J. F. O.

Process for the Manufacture of a Pure Paper Stock from Old Printed Papers. Robert Weber, Drentwede, Bremen. Ger. pat. 523,864 (Nov. 19, 1929). The defibered old paper is treated with causticized sludge which precipitates out in the causticizing of soda ash or sodium hydroxide, that is, in the sulphate smelt.—J. F. O.

Process for the Decomposition and Bleaching of Plant Raw Materials of All Kinds by the Use of Elementary Chlorine. Verein für Chemische Industrie Akt. Ges., Frankfurt a.M. Ger. pat. 532,148 (June 30, 1929). A mixture of chlorine and water is injected in the stock while it is in the beater. A wash drum is also used in the process.—J. F. O.

Black Liquors

Recovery of Sodium Hydroxide from Waste Liquor Obtained from Digestion of Chinese Reeds. M. Fujii. J. Cellulose Inst. (Tokyo) 7:59-60 (1931).—The waste liquor is concentrated, mixed with lime (or lime mud from the causticization of soda ash), dried, calcined, and extracted with water, when a clear pale yellow solution of caustic soda is obtained, the silicate in the original liquor which was derived from silica in the cellulosic material remaining insoluble as calcium silicate. A recovery of about 80 per cent of the initial caustic soda is considered possible.—A. P.-C.

Alkali Recovery Patent Review. C. L. Wagner.

Paper Trade J. 94, No. 14:40-42 (April 7, 1932).—Brief abstracts of U. S. patents.—A. P.-C.

Liquid Fatty Acids from Talloel. Willi Schultze. U. S. pat. 1,826,224 (Oct. 6, 1931).—A process of decomposing talloel to obtain the liquid fatty acids substantially free from resinic acid comprises distilling the talloel at a decomposing temperature in a high vacuum (8 mm. of mercury or less) in the absence of steam and foreign gases until the first traces of resinic acid begin to come over, and then discontinuing the distillation.—A. P.-C.

Process for the Recovery of Caustic Soda from Alkali Liquors Containing Organic Impurities. I. G. Farbenindustrie Akt. Ges. Frankfurt, a.M. Ger. pat. 513,-755 (Jan. 15, 1927). The liquors are treated with oxygen or gases containing oxygen at temperatures above 100 deg. The principle of the invention is that an oxygen pressure of more than one atmosphere comes into use whereupon the alkali carbonate formed is changed over into hydroxide in the usual manner, preferable with chalk—J. F. O.

Process for the Recovery of Caustic Soda from Alkali Liquors Containing Organic Impurities. I. G. Farbenindustrie Akt. Ges., Frankfurt, a.M. Ger. pat. 537,845 (Nov. 12, 12927). Addition to Ger. pat. 513,755. In carrying out the main patent further, the oxidation takes place in the presence of the usual oxides of barium or strontium as the causticizing means.—J. F. O.

Process for the Regeneration of the Brown Liquor and the Lime Sludge in the Manufacture of Sulphate Pulp. Paul Knichalik, Magdeburg. Ger. pat. 540,233 (May 20, 1927).—The lime sludge formed during the regeneration, is mixed in the usual manner with fine granular or pulverized combustion materials (saw dust, small coal or pulverized coal) and then smelted together with the thickened brown liquor in a soda oven whereby a quantity of melted soda and burnt lime are formed, while a reduction to Glaubers salts takes place in a special constructed oven. According to claim number 2 the incrustants separated from the brown liquor are used as the reduction means for the Glaubers Salts.—J. F. O.

Purification of Waste Alkali Liquors Contaminated with Organic Substances. I. G. Farbenindustrie Akt. Ges., Frankfurt a.M. Ger. pat. 540,841 (July 3, 1928).—The organic substances are removed by the treatment of the waste liquors with oxidation means. Alkali manganate or alkali permanganate are used as the oxidation means.—J. F. O.

Process for the Alkalisation of the Waste Liquor from the Soda and Sulphate Pulp Manufacture for the Purpose of the Dry Distillation of Same. Erik Ludvig Rinman, Djursholm, Sweden. Ger. pat. 541,256 Aug. 4, 1929).—The alkalisation is carried out with oxides or hydroxides of barium or strontium or with a mixture of both. —J. F. O.

Rotating Drum for the Evaporation, Drying, Roasting, Calcining and Similar Processes. Eberhard Hoesch & Sohne, Duren. Ger. pat. 529,064 (Jan. 14, 1930).—The rotating drum is characterized by having heating coils fused in the drum itself or placed between a double lining.—J. F. O.

Arrangement for the Heating of a Liquid, that is the Evaporation of a Liquid by the Use of Steam Currents. Einar Morterud, Norway. Ger. pat. 529,-065 (June 18, 1927).—The invention is a combination of two known processes.—J. F. O.

Process and Device for Avoiding Foam from Liquids Under Decreased Pressure. Reinhold Kummer, Berlin. Ger. pat. 531,217 (June 30, 1928).—There is an opening above the liquid being evaporated, through which a pulsating air or gas stream is introduced.—J. F. O.

Process for the Evaporation of Liquids, Especially in Multiple Effect or Vapor Compressions Installations. Metallgesellschaft A. G., Frankfurt a.M. Ger. pat. 519,-725 (Nov. 19, 1926).—The vapors which are evolved as residual vapor from the evaporator, that is from the last stage, are condensed in passing through the liquid being evaporated.—J. F. O.

Electrical Gas Purification. Zellstoff Papier 12, No. 1, 21, January 30, 1932.—Acts according to the impulse ionization in a field with regulated potential.—J. F. O.

Arrangement for the Evaporation of Solutions. Metallgesellschaft Akt. Ges., Frankfurt a.M. Ger. pat. 546,940 (Aug. 27, 1925).—The arrangement is for solutions in which salts separate out. The material to be evaporated is sprayed into the evaporation chamber—J. F. O.

Device for a Soda Smelting Oven and Similar Objects. G. Magnusson, Skonvik. Swed. pat. 72,716 (Feb. 14, 1929).—The soda smelting oven has an opening for the introduction of the blower in the uppermost part. —J. F. O.

Process for the Separation of Rosin and Fatty Acids in Pine Oil (Floating Rosin). S. A. Gardin, Stockholm. Swed. pat. 72,733 (Jan. 9, 1929).—The fatty acids in pine oil are esterified with such an alcohol (for example glycerin) which forms with this ester such a high boiling point that in the following distilling off of the fatty rosin acids it does not form any appreciable impurity of the acid ester; and only in such quantities that only the fatty acids are esterfied whereby the rosin acts not esterfied can be distilled off.—J. F. O.

Process for Enriching the Phytosterins in the Precipitated Sulphate Soap or Pine Oil as By-Products in the Alkaline Decomposition of Wood, for the Purpose of Obtaining the Same in a Purer Form from the Enriched Concentrate. Hakan Sandquist, Stockholm. Swed. pat 72,858 (Jan. 24, 1930).—To an aqueous solution of sulphate soap or esterfied pine oil, a certain quantity of a solution of an electrolyte, base, salt or eventually an acid is added at usual temperatures with cooling or heating, so that a certain part of the sulphate soap or when acids are used, the precipitated pine oil, is obtained which is richer in the phyto sterins.—J. F. O.

Process for the Precipation of Silicic Acid Contained in the Waste Liquors of the Alkaline Cooking Processes. Procedes Navarre Societe Anonyme, Lyons, France. Ger. pat. 544,154 (Feb. 28, 1930).—The hot waste liquors, at the same temperature at which they leave the digesters are allowed to come in contact with plant or animal substances which are in condition to free the acids through hydrolysis. In the course of this process, the alkalinity of the waste liquors decreases rapidly. As soon as neutrality is reached, the silicic acid is thoroughly removed, this being done by means of a centrifuge. The plant materials which can be used in the process are various kinds of straw, esparto, dwarf palm, algea, decayed leaves, peat, etc. and the animal substances are wool waste, various hair and skin wastes, etc.—J. F. O.

Process for the Purification of Solutions of Metallic Salts Which Contains Organic Matter as Impurities. I. G. Farbenindustries A. G., Frankfurt, a.M. Aust. pat. 124,724 (May 15, 1931).—The solutions of metallic salts are treated at temperatures over 130 deg. C. with oxygen or gases containing oxygen, at pressures over one atmosphere, until the organic matters are completely oxidized. —J. F. O.

Effect Of White Water On Sheet Properties*

By E. R. Schafer[1, 2]

Summary

The 1930-1931 report of the waste committee of the Technical Association of the Pulp and Paper Industry presented briefly the work in progress at the Forest Products Laboratory[3] on the effect of white water on sheet properties. The present article discusses the results of further work which confirms the experiments previously reported.

It has been found that the volume of white water reused on the experimental paper machine at the Forest Products Laboratory may be varied from zero to 100 per cent without affecting the physical properties of the paper in so far as it concerns the introduction of white water fiber and filler. The use of any volume of white water less than 100 per cent of the total volume of water required to operate the machine reduced proportionately the retention of filler in the paper, which in turn causes an increase in the strength properties. If additional filler is used in the furnish to compensate for the lowered retention no change in the properties of the paper is noted.

Introduction

The work on the effect of white water on sheet properties described in this article is a contribution of the Forest Products Laboratory to the 1931-1932 program of the waste committee of the Technical Association of the Pulp and Paper Industry. The work started in 1930 and a brief report of the work done in that year has been published.[4] It was found at that time that a standard book paper increased in strength as less white water and more fresh water were used in the machine operation. The amount of filler retained in the paper decreased as the volume of white water was decreased and it was to this that the increase in strength was attributed rather than the amount of white water fiber retained in the paper. News print paper was made under similar conditions but with a small amount of clay in the furnish. The strength of this paper and its clay content remained practically constant regardless of the amount of white water used.

The objectives in resuming the work were to (a) determine the effect of different amounts of white water fiber on the paper without clay present, (b) determine the effect of different amounts of white water fiber with a constant amount of clay present.

Experimental Work

Grades of Paper Made

The experimental work consisted essentially in the making of paper containing varying amounts of fiber and filler introduced from white water. As in the previous work two grades of paper were made, book and newsprint. The pulps were of the usual commercial grades used for such papers. The book paper furnish was 40 per cent bleached soda pulp and 60 per cent bleached sulphite pulp, to which were added 1.5 per cent rosin size, 6 per cent alum and a small amount of crystal violet dye (the percentages of the added chemicals, as is customary, was based on the total weight of fiber). A series of five runs was made with this furnish. Another series of five runs was made with the same furnish but with clay added in each run in such amounts as appeared necessary to maintain a constant amount of clay in the paper for all variations in the volume of white water used. Since it was expedient that the amount of clay added in each run be based on previous experience and personal judgment, the result was that the amount of clay retained in the paper was not absolutely constant in each run. However, the deviation from a constant amount was not sufficiently great to prevent an accurate interpretation of the results. It was much less than that obtained in the previous work where the results were difficult to interpret.[4] A third series of news print papers was made in which the furnish consisted of 70 per cent of ground-wood pulp and 30 per cent of unbleached sulphite pulp to which were added 1.5 per cent of rosin size, 4.5 per cent of alum, and a small amount of dye.

Paper Machine Operation

The paper machine was operated in as nearly the same manner as possible for all runs but it was necessary to vary some of the conditions in each of the three series because of differences in the stock and kind of paper being made. The following machine factors were constant for all runs: The speed of the wire, the setting of the slices, the depth of the stock ahead of the slice, couch, press and calender pressures, and the various machine draws. The consistence of the stock in the pond was the same for all runs in a series but was different for each series because of the variation in the rate of water drainage from the three kinds of stock. The amount of vacuum applied at the suction boxes was the same for all runs in a series but was varied for each series. The wire and felts used for the book paper runs had been previously used but a new wire and new felts were used on the news print paper runs. The steam pressure on the dryer section was also maintained constant for all runs in each series but this pressure was not the same for the three series because of the difference in the drying characteristics of the different stocks.

The term white water as used here refers to the rich wire-tray water returned to the stuff. The quantity of white water returned was determined by the setting of a valve between the tray and the white water pump. This valve was calibrated just previous to starting the work. The term waste water in this report refers to all water not returned to the stuff. It consisted, therefore, of wire-tray water not returned, and the suction box and couch-tray water. This water was pumped into a calibrated tank where the quantity was determined. Water from the two press rolls was not measured as it was very lean in fiber content. In efficient mill operation the waste water and press-roll water would, of course, be utilized in the beaters or the fiber recovered in save-alls. Its use in this manner in the experimental work would have unnecessarily complicated the problem.

Methods of Sampling

Samples were taken at definite intervals during each paper machine run of the stuff, the white water, the waste water, and the paper. In each run the machine was operated for at least 15 minutes before the taking of the

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[2] Acknowledgment is made of the helpful assistance in this work received from W. A. Chilson, F. A. Simmonds, J. C. Pew, and M. Heinig, of the Forest Products Laboratory. Further acknowledgment is made to the Marathon Paper Mills Company, the Kimberly-Clark Corporation, and the Consolidated Water Power and Paper Company, for the pulp used in the experiments.

[3] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

[4] Waste Committee Annual Report. Tech. Assoc. Papers 14, 1, 266 (May, 1931); Paper Trade J. 92, No. 25, 39 (June 18, 1931).

TABLE 1.—PAPER MACHINE DATA

Type of paper	Machine run No.	Paper machine furnish: Stuff: Consistence per 100 pounds: Fiber, pounds	Filler, pounds	Total, pounds	Amount: Total[1] pounds per hr.	Oven-dry solids, pounds per hour	White water: Consistence per 1000 pounds: Fiber, pounds	Filler, pounds	Total, pounds	Amount: Total, pounds per hour	Oven-dry solids, pounds per hour	Relative volumes: White water, per cent	Fresh water, per cent	Fresh water,[3] pounds per hour	Total furnish—White water solids based on total furnish: Amount over-dry solids pounds per hour	Fiber, per cent	Filler, per cent	Waste water: Consistence per 1000 pounds: Fiber, pounds	Filler, pounds	Total, pounds	Amount: Total, pounds per hour	Oven-dry solids, pounds per hour	Paper produced: Filler: Retention,[4] per cent	Amount based on paper, per cent	Total, pounds per hour	Efficiency of conversion[5], per cent
Book paper without clay furnish	576	2.59	...	2.59	1640	42.5	0.218	...	0.218	4480	1.0	100	0	0	42.5	2.3	...	0.082	...	0.082	15200	1.5	...	...	39.0	89.7
	578	1.36	...	1.36	3060	41.7	0.181	...	0.181	3340	0.6	70	30	1420	42.3	1.4	...	0.079	...	0.079	17100	1.4	...	...	39.4	93.0
	581	.98	...	.98	4300	42.1	0.187	...	0.187	2250	0.4	54	46	2660	42.5	.9	...	0.084	...	0.084	13900	1.2	...	...	40.6	95.6
	582	.80	...	.80	5490	43.9	0.166	...	0.166	1525	0.3	28	72	3850	42.5	.7	...	0.070	...	0.070	13800	1.0	...	...	38.0	86.0
	583	1.85	0.54	2.70	2120	39.2	...	...	...	0	0	100	0	4200	39.2	0.5	12.3	0.068	...	0.068	17100	1.2	15.8	53.8	39.2	100.0[6]
Book paper with clay finish	575	2.16	.46	2.70	1638	44.2	0.21	0.01	1.22	6330	2.7	100	0	0	51.7	1.5	8.3	0.24	0.44	0.46	12420	5.7	40.8	49.3	39.2	74.5
	577	1.42	.46	1.88	2480	46.6	0.18	0.99	1.17	4340	5.1	84	16	840	48.1	1.8	5.5	0.02	0.44	0.46	12420	5.7	40.8	49.3	39.2	79.0
	584	.89	.39	1.28	3480	44.6	0.24	0.74	0.98	3600	3.5	56	44	1842	46.7	.9	2.5	0.07	0.28	0.35	13880	4.9	36.4	21.0	40.0	75.5
	579	.74	.28	1.02	4420	45.1	0.19	0.55	0.74	2140	1.6	44	56	2732	46.7	0	0	0.06	0.26	0.32	16100	5.2	40.0	20.2	40.2	85.7
	580	.75	.38	1.13	4140	46.7	....	....	....	0	0	0	100	2315	46.7	0	0	0.10	0.36	0.46	15120	6.9	40.2	20.8	61.8	86.2
	587	2.32	...	2.32	1150	26.6	0.253	...	0.253	6070	1.5	100	0	6220	28.4	5.4	...	0.105	...	0.105	15330	1.6	22.1	...	...	82.8
News print paper	588	2.32	...	2.32	1155	26.8	0.253	...	0.253	6070	1.5	100	0	0	27.7	3.2	...	0.065	...	0.065	10880	.7	24.8	...	...	87.3
	589	2.28	...	2.28	1172	26.7	0.212	...	0.212	4240	0.9	73	27	1542	26.6	2.1	...	0.088	...	0.088	12500	1.1	24.5	...	...	87.5
	590	2.19	...	2.19	1187	26.0	0.199	...	0.199	2820	0.6	49	51	2952	26.6	.9	...	0.097	...	0.097	13800	1.3	23.4	...	...	88.0
	591	2.13	...	2.13	1242	26.3	0.194	...	0.194	1233	0.2	23	77	4295	26.7	.9	...	0.149	...	0.149	10950	1.6	24.9	...	...	93.3
	592	2.15	...	2.15	1175	25.3	....	....	....	0	0	0	100	6295	25.3	0	...	0.139	...	0.139	12870	1.8	21.8	...	...	86.5

[1] Includes the additional fresh water required to replace white water diverted to the waste water tank.
[2] This is the additional fresh water required to replace white water diverted to the waste tank.
[3] This waste water would normally be utilized for beater make-up or passed through save-alls. Its use in such manner in this work would have unnecessarily complicated the problem.
[4] Retention of filler based on the amount in the furnish and the amount retained in the paper.
[5] Efficiency of conversion based on the total fiber and filler furnished and the amount of paper produced per hour. This would have been higher had the waste water been utilized.
[6] This is obviously incorrect as there was a loss of 1.2 pounds per hour in the waste water.

sample was started. This period was considered sufficient to bring the concentration of the white water to an equilibrium condition that would remain constant throughout the rest of the run.

The stuff was sampled every 5 minutes by taking one 200 cc. sample at the stuff meter. These samples were combined in a closed glass container and the composite sample subsequently analyzed as described later. The samples of white water and waste water were taken continuously from the vent cocks of the white water and waste water centrifugal pumps, respectively. The vent cocks were regulated to deliver approximately 5 gallons of white water or waste water per hour. The paper was sampled by inserting flags in the reel at 10-minute intervals and subsequently removing sheets of paper at these places for testing. The paper production was obtained by weighing the quantity between the first and last flags.

Methods of Testing

The white water and waste water samples were analyzed by the T.A.P.P.I. proposed standard method[5] for total suspended solids and for fixed suspended solids. The samples of stuff were analyzed by the same methods. The clay or filler content of the paper was determined by the Forest Products Laboratory method No. 57[6] and the paper tests for strength properties and for opacity were made according to Forest Products Laboratory methods Nos. 124, 127, 129, 130, and 134, all of which are official T.A.P.P.I. methods. The cleanliness, color, gloss, and ink penetration tests on the paper were made according to the Forest Products Laboratory methods Nos. 102, 137, 140, and 172, respectively, unofficial or tentative T.A.P.P.I. testing methods.

Discussion of Results

The volumes of white and fresh water used, the consistences of white water and the stuff at various points and the paper production are given in Table 1. The strength and other physical properties of the papers are given in Table 2.

Book Paper Without Clay Furnish

Machine runs Nos. 576, 578, 581, 582, and 583 were made with the book paper furnish but with the clay omitted. The volumes of white water used in this series were 100, 70, 46, 28, and 0 per cent, respectively, of the total volumes of water required on the paper machine. It was found impractical to obtain an absolute balance of materials and therefore the exact amount of white-water fiber retained in the paper could not be determined. However, a rough estimate of the amount retained may be had from the relative amount of white-water solids in the furnish. It is probable that the efficiency of retention of the white-water fiber in the paper was equal to the efficiency of conversion of the entire furnish into paper. Under such circumstances the relative proportion of white-water solids in the paper is equivalent to that in the furnish. It may be assumed then, that the amount of fiber derived from white water in the papers in this series varied from 2.3 to 0 per cent. Under these conditions the properties of the papers were found to be affected very little by the white-water fiber. Slight variations in the strength values were noted from paper to paper but no regular or uniform trend was obtained. The greatest irregularity was noted in the printers ink penetration test but there was no machine operating variable to which this could be attributed. Little

[5] Proposed standard method of measuring, sampling, and analyzing white and waste waters. Report of TAPPI Waste Committee, by A. W. Pesch. Tech. Assoc. Papers 13, 116-118 (May, 1930).

[6] Manual of standard testing methods for pulpwood, pulp, stuff and paper. First edition, 1928. Compiled by the Pulp and Paper Section, Forest Products Laboratory.

change was noted in the gloss, dirt count, opacity, or color tests.

Book Paper With Clay Furnish

The series consisting of machine runs Nos. 575, 577, 584, 579, and 580 was made with the same furnish as the foregoing except that clay was added. The amount of clay added was varied according to the conditions of machine operation, that is, the clay furnish was increased as the volume of white water was decreased, the purpose being to maintain a constant amount of clay in the paper. As was mentioned previously, the amount of clay was not constant in all runs but sufficiently close so that the results were not affected materially.

In this series the volumes of white water used were 100, 84, 66, 44, and 0 per cent, respectively, of the total volumes of water required on the paper machine. The content of clay in these volumes of white water were 12.3, 8.3, 5.5, 2.5, and 0 per cent by weight, respectively, of the total furnishes and the fiber content of the white water was 2.5, 1.5, 1.8, 0.9, and 0 per cent, respectively, of the total furnishes. It appears, therefore, that the amount of fiber in the papers introduced from white water was about equivalent to that of the previous series. It also appears that any properties of the papers that may be attributed to the presence of white-water solids must be considered as due principally to the filler and only slightly to the fiber. As a matter of fact, there seemed to be no relation between the properties of the papers and the amount of white-water solids in the sheet. None of the strength properties, except the tensile strength, were changed perceptibly by varying the amount of white-water solids. A slight increase, especially in tensile strength, was noted in the strength of those papers containing the less clay. As in the series without clay the printers ink test was irregular and the gloss, dirt count, opacity, and color changed but little by varying the white water.

News Print Paper

Machine runs Nos. 587, 588, 589, 590, 591, and 592 were a series of news print paper runs. This series was in reality a continuous run in which the volume of white water returned to the stuff line was varied at intervals. The volumes of white water used during the various intervals were 0, 100, 73, 49, 23, and 0 per cent, respectively, of the total water required. The object of changing from 0 to 100 at the start of the run was to note the effect on the paper of an abrupt change from all fresh water to all white water. As in the previous series an entire balance of materials was not obtained and therefore the amount of white-water solids retained in the paper could not be absolutely determined. The approximate amount was estimated by assuming the efficiency of conversion for the entire furnish and that of the solids in the returned white water to be equal. On this basis, the amount of white-water solids retained in the paper varied from 5.4 per cent of the paper when all of the water used was white water to 0 per cent when all of the water used was fresh water.

The effect of varying the white water on the properties of the news print was the same as for the book paper. Slight irregularities were noted in the average strength values from paper to paper but these were practically within the experimental error of the individual test values on any one paper. As was noted previously the tensile strength test appeared more sensitive than the other tests and small but uniform decrease in strength was obtained with decrease in the amount of white-water fiber introduced into the sheet. The abrupt change from all fresh water to all white water affected only the tensile strength. The printers ink test and the gloss and other optical tests were affected only slightly and in no regular manner.

Printing Tests

Sheets of all the papers made in this study were printed with a half-tone cut and appropriate titles on a multigraph machine. Although such a printing test is not equivalent to one made on a press under actual operating conditions, nevertheless it may be considered indicative at least for a comparative test. To the lay observer no difference could be detected in the printing quality of the papers in any one series. The judgment of an expert printer was not available.

Conclusions

The results of this work show that the presence of white-water fiber in book paper up to about 2 per cent and in news print paper up to about 5 per cent has no effect on the physical properties; neither has clay filler introduced into book paper from white water any effect on the physical properties. The previous work on this problem showed that reducing the volume of white water and increasing the volume of fresh water reduced the retention of filler in the paper and this in turn caused an increase in the strength properties. The present work shows that if additional filler is furnished to the stock to compensate for the reduction in the retention when the white water is reduced, very little change in the paper properties occurs.

TABLE 2.—PHYSICAL PROPERTIES OF THE PAPERS.

Type of paper	Machine run, No.	White water solids in the furnish: Fiber, per cent	White water solids in the furnish: Filler, per cent	Weight per ream 24×36—500, pounds	Thickness, inches	Strength properties: Bursting, Pits. per lb. per ream	Strength properties: Tearing, Gms. per lb. per ream	Strength properties: Folding, double folds	Strength properties: Tensile breaking strength, meters	Strength properties: Stretch, per cent	Optical properties: Printers ink test, Sec.	Optical properties: Dirt particles, No. per square inch	Optical properties: Gloss, per cent	Optical properties: Opacity, per cent	Optical properties: Color: Red, per cent	Optical properties: Color: Green, per cent	Optical properties: Color: Blue, per cent
Book paper without clay furnish	576	2.3	...	55.4	0.0051	0.32	1.19	12	3712	2.13	196	1.1	28.7	85	84	82	80
	578	1.4	...	54.3	.0050	.40	1.21	13	3695	2.30	172	1.4	30.0	85	88	84	82
	581	.9	...	54.7	.0050	.35	1.51	11	3765	2.11	276	.9	27.7	85	85	81	80
	582	.7	...	54.0	.0049	.35	1.24	12	3773	2.10	172	1.1	27.9	85	84	81	79
	583	0	...	53.6	.0049	.41	1.25	14	3971	2.27	270	1.1	30.1	85	84	81	78
Book paper with clay furnish	575	2.5	12.3	54.0	.0046	.27	.90	7	2902	2.17	161	1.7	29.8	91	86	85	82
	577	1.5	8.3	53.7	.0047	.27	.98	6	2815	2.09	139	1.0	29.5	91	89	86	85
	584	1.8	5.5	52.7	.0043	.24	.64	3	2608	2.10	164	1.1	29.8	93	86	84	83
	579	.9	2.5	55.1	.0047	.24	.79	4	2358	2.13	191	.8	28.7	91	87	85	83
	580	0	0	54.4	.0047	.23	.74	3	2287	1.88	142	.8	28.8	91	89	86	84
News print paper.....	587	0	...	33.6	.0042	.35	.87	5	3425	1.75	60	2.1	29.8	87	75	65	60
	588	5.4	...	35.6	.0044	.35	.87	4	3858	1.75	73	2.3	31.4	88	76	66	62
	589	3.2	...	35.5	.0043	.37	.87	6	3795	1.72	61	1.7	31.3	89	76	67	62
	590	2.1	...	33.8	.0042	.37	.90	5	3610	1.75	59	2.2	31.4	88	74	65	60
	591	.9	...	35.1	.0043	.35	.83	5	3495	1.73	62	1.9	31.1	89	74	65	60
	592	0	...	31.2	.0039	.34	.80	4	3400	1.50	50	1.8	30.4	89	73	64	59

The Development of a Rational Cooking System for Sulphite Digesters

By W. H. Swanson[1], Lloyd Lang[2], and B. F. Smith[3]

In recent years considerable research study has been made of the sulphite process. This has largely centered around the variables involved in the cooking process and their several effects on the product as regards quality and yield.

Several years ago it became apparent to the writers that, while the published researches were of considerable value as a guide in the operation of sulphite mills, too often the information obtained from small scale cooking equipment was not directly applicable to commercial installations. Considerable judgment had to be used in attempting to make such applications, and often the results did not agree with expectations. The obvious conclusion could only be that the same uniformity of conditions does not exist in large scale cooking equipment as is found in units of experimental size.

Now the three controllable variables involved in the cooking process are obviously temperature, digester pressure and acid concentration. By logic, both acid concentration and pressure can be eliminated as subject to variation independent of temperature. The free SO_2 concentration of the acid is a function of the digester pressure permitted, and also of the particular temperature schedule used for cooking. Reasoning along the above line the authors concluded that the condition in large scale cooking equipment which was subject to widest degree of variation, as compared to that in small scale apparatus was probably temperature. It was essential to check this reasoning by actual study of temperature conditions throughout a commercial size digester and a method of accomplishing this was devised.

For the experimental study one of the 15 foot x 35 foot digesters at the Kimberly Mill was selected. In it were installed four ½ inch KA2 conduit pipes, extending perpendicularly downward from outlet fittings in the shell dome to the lower portion of the bottom cone. Three of the conduits were situated on 120° radii, about 18 inches in from the inner surface of the lining. Suitable clamps attached to the shell supported the pipes permanently in this position. The fourth conduit was suspended in the middle of the digester, its position being maintained by stays extending from the shell. Four low temperature iron—constantan thermo-couples were then located in each conduit, the first ending at a point in the dome section, the second about ⅓ the distance down the cylindrical section, the third about ⅔ down the cylindrical section, and the fourth about ½ way down the bottom cone. The thermo-couple wiring extended through the conduit outlets to a multiple point switch and potentiometer temperature indicator located on the digester charging floor. This system permitted of taking temperature measurements at four horizontal planes in the digester contents, and further at four points in each plane, making sixteen readings in all. By means of the multiple point switch these readings could be taken consecutively and over a very short interval of time.

A great number of cooks were studied with this system, temperatures being taken at all sixteen points at 15 minute intervals throughout the progress of the cooks. Fig. 1 gives typical maximum, minimum temperature curves for a single cook. Digester temperatures varied at the different points in the digester widely within the limits of these two curves. It will be noted that any degree of uniformity was reached only during the last two hours of the cook, after the steam was off and digester pressure was being severely reduced for SO_2 recovery. The hottest zone of the digester was found to lie along the central axis, as would be expected. The coldest zones were along the lower portion of the cylindrical section adjacent to the lining, and in the bottom cone. The natural circulation of digester liquor being caused by convection currents and gas ebullition the temperature conditions found are just what one would expect.

In order to indicate the authors' impression of the result on pulp quality of such temperature variations Fig. 2 is presented. It represents a section through the digester and the probable pulp characteristics in each zone, resulting from the temperature course in that zone. The pulp in zone 1, as shown by the figure, is properly cooked, in zone 2 severely overcooked, and in zone 3, in general, undercooked. These zones may vary in extent from cook to cook, and naturally the overall pulp quality will vary in accordance with this situation.

This preliminary study of temperature conditions resulting from the conventional method of digester heating was sufficiently convincing to indicate the need of a more rational cooking method. It was conceived that an acid high in free SO_2 concentration, or a mechanism which would permit of the injection of excessive quantities of either relief gas or burner gas with its high percentage of fixed gases, might act as a good agitator and consequently lead to more uniform temperatures. However, critical analysis did not support this assumption. Any method of distribution depending on convection currents or gas ebullition must of necessity produce zones of non-uniform temperature. Therefore, this line of attack was abandoned. Attention naturally turned toward a method involving the positive or forced circulation of the cooking liquor through the digester contents by means of a pump.

Concurrent with the cooking study the authors were also carrying on an experimental study of a waste liquor recovery process conceived by P. A. Paulson, formerly of this organization. One phase of this process involved the use of a high pressure forced circulation evaporator. The successful manner in which the high velocity heater on the evaporator functioned with waste liquor, suggested that the same principle should apply to the heating of cooking liquor. Preliminary experiments with a single tube heater connected to one of the digesters showed conclusively that such a heater could be used, provided a chrome nickel alloy of the 18-8 type was used as a tube material, and further, that the velocity of the cooking liquor through the tube was maintained above eight feet per second. These

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[2] Chemical Engineer, Sulphite Division, Pulp and Paper Department, Kimberly-Clark Corp.
[3] Process Engineer, Pulp and Paper Division, Engineering Department, Kimberly-Clark Corp.

experiments proved the feasibility of an external heating system.

Another important phase of cooking is the maintenance from cook to cook of a definite cooking schedule as regards temperature, pressure and time. In other words all cooks must duplicate each other in these variables as closely as possible. Obviously this can best be obtained by elimination of the human element, replacing it with mechanical, automatic controlling intruments.

As has been pointed out, it was already established that the new cooking system should involve forced circulation of the digestion liquor and further that this liquor could be heated external to the digester. This combination of conditions admirably suited the new process to the application of automatic controlling equipment.

Thus were established the three basic principles to be followed in the development of the new system.

The next step in the program was one of development of details. Some of these could be worked out by logic. Others necessitated preliminary experimental study. The major features requiring attention were as follows:

1. Materials to be used in the system.
2. Direction of circulation of liquor through the digester.
3. Rate of turnover of the liquor component of the digester charge.
4. Design of liquor strainers.
5. Size and design of the external heater.
6. Design of the circulating pump.
7. Method of application of automatic controls.
8. Method of collecting steam condensate from the heaters.

These will be discussed in the order given.

Materials Used in System

As concerns the materials of construction, it had already been determined that chrome nickel steel of the 18-8 type was necessary as a tube material for the heaters. Experience had shown that copper and bronze, the conventional materials used in sulphite practice, would be undesirable in this installation. First the life would not be sufficiently long, and second, the tendency to scale is too pronounced. Therefore, the selection of the chrome nickel alloys, either 18-8 or 23-11, was dictated, on all parts in contact with the cooking liquor. The materials for parts not subject to corrosion would obviously be the conventional ones, such as steel, brass, etc.

Direction of Circulation of Liquor

The direction of circulation of the digestion liquor could be either of the following:

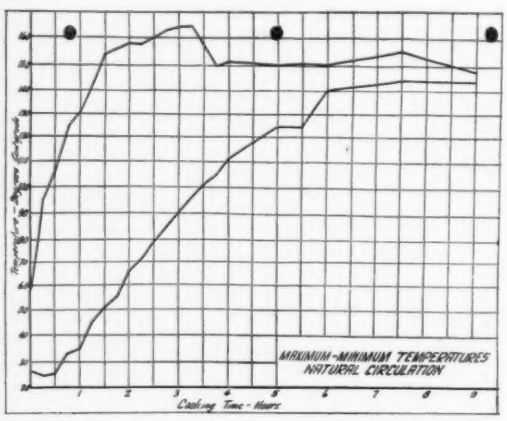

FIG. 1.

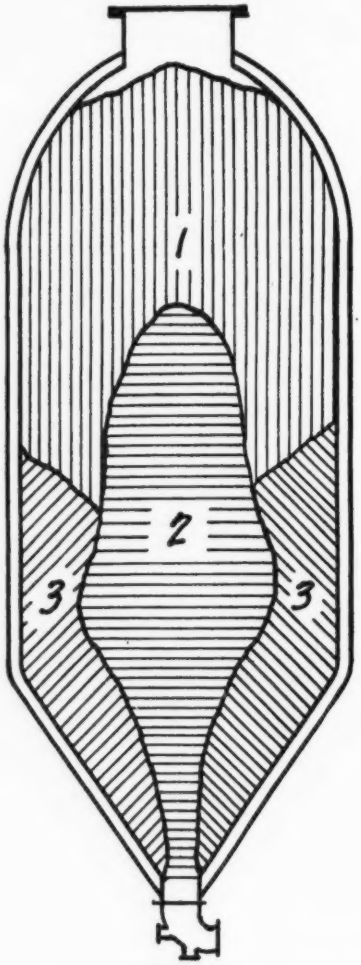

FIG. 2.

Sectional view of digester showing effects of unequal temperatures on pulp quality.

1. Withdrawn from the top of the digester and introduced again at the bottom.
2. Withdrawn from the bottom and introduced at the top.
3. Withdrawn from the middle and introduced at the top and bottom.

Our choice was the first for the following reasons. First, the problem of liquor strainers and their support in the digester was least difficult when located at the top of the digester. Second, it is more logical to withdraw sulphite acid, with its component of dissolved and volatile SO_2, from the zone of relatively low pressure, heat it up to a higher temperature and re-introduce it at a point of higher pressure. Obviously the top of the digester is the zone of lowest pressure and the bottom the zone of highest pressure. Raising the temperature of the acid naturally tends to drive out the dissolved gas. Introducing the heated acid in the lower pressure top zone would tend to flash some of the gas through the relief valve, thus reducing the acid strength more rapidly than necessary. Finally, the warmer liquid introduced into the bottom of the digester would tend to rise to the top, thus aiding in the circulation.

Rate of Turnover of Cooking Liquor

The rate of turnover of the liquor component of the digester charge was not known and had to be determined

experimentally on a full scale unit. Details of the effect of varying the rate of turnover on the uniformity of temperature in the digester will be shown later. Suffice it to say here that it was established that the turnover of the total liquor charge should be at least once every half hour.

Strainer Design

The strainer for removing liquor from the top portion of the digester required considerable thought and experimental trial before a completely satisfactory design was developed. It was deemed advisable to keep the strainers independent of the lining because of the differential expansion problem involved. Further the pipe and supports had to be strong enough to resist the lifting force of the chips due to their floating tendency at the start of the cook.

The final design consisted of a hexagonal perforated pipe ring situated near the base of the dome section, about six inches in from the lining surface. Brackets at the six apices of the hexagon, fixed through the lining to the shell, served as supports. In each of these brackets was clamped rigidly a 60 degree elbow. Perforated pipe sections joined the six elbows, the joints being of the simple stove pipe type. Since the strainer was perforated there was no particular need for tight joints at these elbows. By adopting this design each straight section of piping could expand and contract without reference to the other sections, there being no progressive accumulation of stresses due to expansion. The one possible objection to this type of strainer is the possibility of lodgement of stock above it. This has proven to be very minor in nature, and the advantages far outweigh it in actual practice. It also makes a very economical design, there being no odd shaped sections, nor any curved bends involved.

The collector pipe from the strainer communicated with it through a tee outlet. This collector pipe was installed inside the digester most of the way down to the intake of the pump (as indicated in the flow diagram, Fig. 3) to save on weight of metal in the pipe.

Size and Design of Heater

The size of the external heater was determined by the maximum rate at which it was desired to heat up the digester contents, the coefficient of heat transfer of the

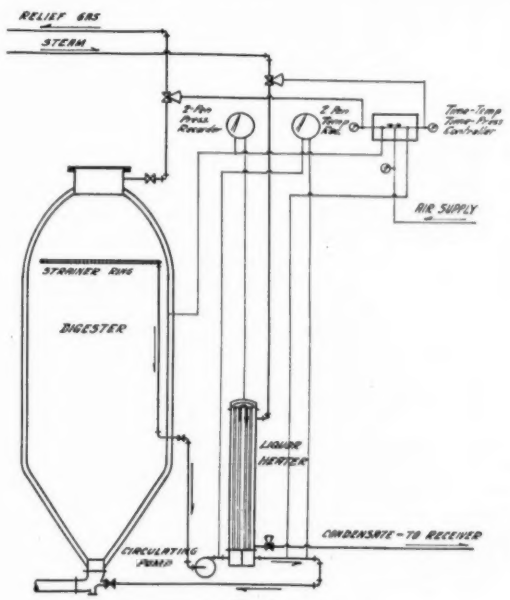

FIG 3.
Flow diagram of circulation system.

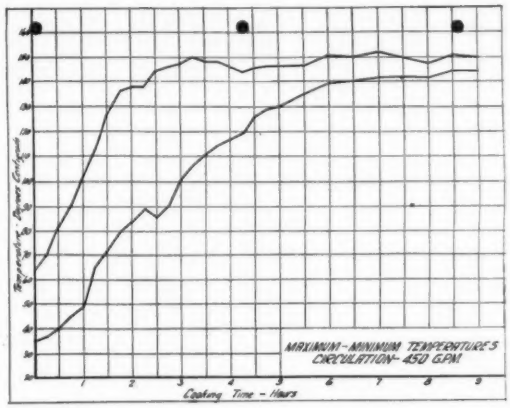

FIG. 4.

heater tube material with liquor passing the tube surfaces at a velocity of 10 feet per second, and the temperature of the steam used for heating. In this case the maximum heating rate was established at 60 deg. C. per hour. Preliminary work on the single tube heater had developed the data as to coefficient of heat transfer to be used. Inasmuch as steam at 20 pounds gauge, from extraction turbines was available, and could be used for heating the digester contents from the starting temperature to 100 deg. C. with considerable economy the heater was designed for the maximum heating rate (60 deg. C. per hour) with steam at 259 deg. F. (corresponding to 20 pounds gauge). Of course, this gave a heater of greater capacity than necessary for the latter part of the cook, when 125 pounds gauge pressure steam was used. But the additional heater expense was warranted when it developed that about 50 per cent of the total steam for cooking would be extraction steam from which power had already been derived.

The design of the heater was studied critically, particularly the relationship of the tube bundle to the steam chest. The first experimental heater was a single pass unit. Experience revealed that this type of heater was faulty in that differential expansion between the tube bundle and the steam chest set up tube stresses which tended to loosen the tubes in the tube sheets. Further, chrome nickel alloys under stress are not as corrosion resistant as when stresses are eliminated. Therefore, the final design selected involved the use of a two-pass heater, with one end of the tube bundle as a free floating head not attached in any way to the steam chest. Stresses are minimized in this design.

Pump Design

In establishing the type of pump to use the main considerations were reliability and ruggedness. In order to eliminate gasket joints as much as possible a single piece side suction volute or casing was chosen. A center suspension method of supporting the casing was chosen to minimize the effect of temperature changes in it on its alignment with respect to the impellor. A closed impellor was selected in order to maintain pumping efficiency over a long period of time. A water cooled stuffing box was specified, as well as a high pressure sealing water arrangement for the pump shaft stuffing gland. The suction inlet was made large enough so that the impellor, stuffing box, shaft and bearings could be removed through it without disturbing the pump setting.

Automatic Controls

The method of application of automatic controls required considerable thought. It was decided to control digester temperature and pressure independently. Auto-

matic time cycle controllers were selected which would permit using any rate of temperature rise desired, through application of cams cut to the proper shape. The same applies to the pressure. This permitted of holding the maximum digester pressure for any time desired and automatically blowing down the pressure at any rate desired and to any point desired by selection of the proper shaped cams. While temperature and pressure were controlled by independent cams the two controllers were mounted in the same instrument and driven by the same time mechanism to insure synchronization of the two. A third cam, operating an alarm system was provided, which would ring the alarm and turn on a light at critical points in the cooking cycle so as to keep the operator informed as to the progress of the cook. At these alarm points the operator inspects the recorders to see that the controllers are functioning according to schedule.

Air operated controllers were adopted, because of their flexibility and reliability. The temperature controller manipulates the steam valve to the heater. The pressure controller operates the top relief valve on the digester.

System for Collecting Condensate from the Heaters

In connection with the indirect heating of the cooking liquor it was evident that the steam used could be recovered as hot condensate to the benefit of the steam department. Further, to derive the complete saving in steam it was necessary to recover the condensate and consequently the sensible heat contained therein. There was one possible obstacle. In case of heater leakage, which might occur, acid liquor could contaminate the condensate and make it unfit for boiler use.

A system was devised which permitted of continuous drainage of the condensate from the heaters, through the use of air operated liquid level controllers. This condensate was carried to a condensate receiver tank through a header, the flash stream from it being conducted separately to the feed water heater in the boiler house. A pump was provided for delivering the condensate from the receiver to the boiler feed water supply system. A conductivity meter was provided to continuously measure and record the conductivity of the condensate. An alarm was provided to operate when the conductivity became too high. In such an event it is the duty of an operator in the boiler house to test the condensate for acidity. In case acid is found, the sulphite operators can be immediately notified, and they test each individual heater determining in which one the leakage is located. The condensate from the heater at fault can be bypassed to the sewer until repairs are made. This system has proven very satisfactory in all respects.

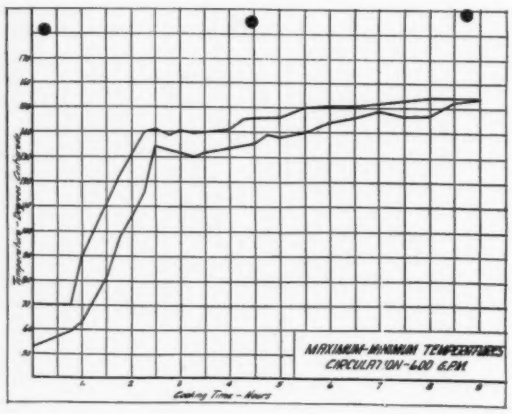

FIG. 5.

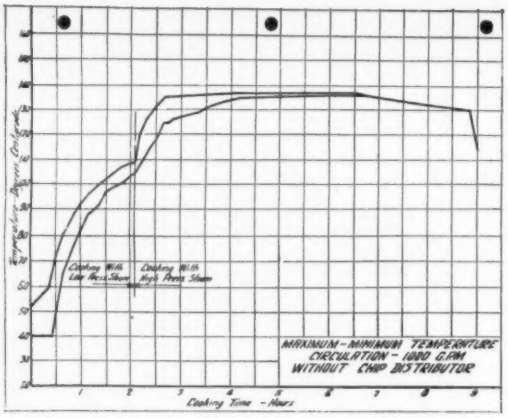

FIG. 6.

Flow Sheet of System

Fig. 3 indicates the flow diagram of the cooking system as finally evolved. It is sufficiently detailed so that it is easily understood when considered in connection with the descriptions given previously.

Establishment of Pumping Rate

The operation of the experimental unit, of commercial size, for a period of fifteen months, permitted of determining many factors of importance, among which was the rate of circulation of the cooking liquor.

Fig. 4 shows the effect of pumping at the rate of 450 gallons per minute, on temperatures throughout the digester, as measured by the thermocouple system. While improved over that of natural circulation it was not sufficient to be satisfactory.

Fig. 5 shows the temperature distribution at 600 gallons per minute pumping rate. This is a notable improvement over the conditions normally existing.

Pumping at the rate of 1000 gallons per minute developed temperature conditions illustrated by Fig. 6. While this might be considered excellent it did not satisfy the authors. As an ideal it had been established that the temperatures in any one horizontal plane of the digester must be uniform. It was realized, of course, that the temperature from bottom to top of the digester must differ during the heating up period, inasmuch as the heated liquor introduced at the bottom would be warmer than that withdrawn at the top.

The thermocouple system indicated that the central zone of the digester was still somewhat warmer than the zones along the digester walls. This was puzzling for a time. However, when the method of chip distribution in the digester was considered, the reason was quite apparent. Referring to Fig. 7, it immediately becomes apparent that the stratification of the chips, resulting from the ordinary filling method tends toward an angularity with an apex along the central axis. Obviously the liquor, following along the stratified channels between the chips would tend to converge and rise preferentially through the center of the digester.

A mechanical chip distributor was devised, which affected the chip filling in a manner indicated by Fig. 8. It is quite evident that there are no concentrating channels resulting from such a method of filling.

The effect on temperature distribution when using the chip distributor and circulating at a rate of 1000 gallons per minute is shown by Fig. 9. It is to be noted that maximum temperature and equilibrium of temperature throughout the digester was reached more rapidly than the

case without the distributor. Further, the maximum temperature for the same time of cooking, and pulp of the same bleachability, was reduced four to five degrees, saving in steam and increasing yield.

The use of the chip distributor also increased the chip charge in the digester very materially, which was an additional desirable feature.

The question of rate of turnover hinges on two factors. The first is the velocity of flow of liquor through the digester necessary to produce uniform temperature distribution in any horizontal plane. The second is the rate at which it is desired to bring the digester to its maximum temperature. At a rate of 1000 gallons per minute any digester 15 feet in diameter, regardless of height, will be uniform in temperature through any horizontal plane. However, if the digester is 48 feet high, rather than 35, as in this particular case, it would be necessary to increase the pumping rate in order to have the digester contents reach maximum temperature in the same time.

Results Obtained from Use of System

This system has been operated experimentally for fifteen months on one digester, and as a routine mill process on all six digesters at Kimberly for over six months more. It is now possible to present reliable operating data developed from its use.

First may be considered the cooking procedure. It was decided to keep the maximum digester pressure constant at the highest point allowed by the insurance company, in this case 85 pounds gauge. It was also decided to keep

FIG. 7.
Sectional view of digester showing chip distribution when using conventional filling method.

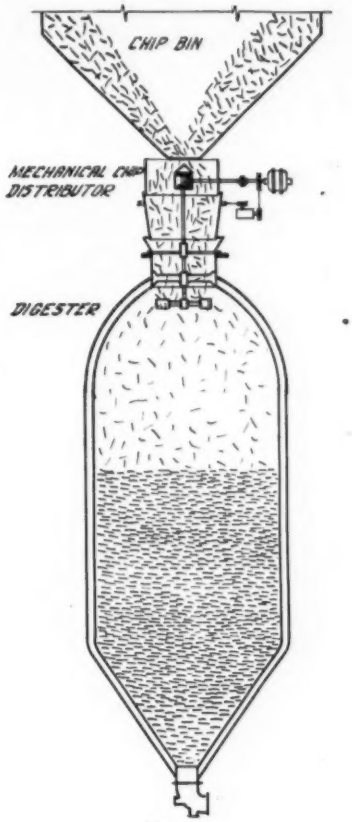

FIG. 8.
Sectional view of digester showing chip distribution when using mechanical chip distributor.

the cooking time constant at 9 hours. Any change in pulp quality was to be accomplished by change in temperature schedule only. Likewise, when changing from one species of wood to another, for example from spruce to hemlock, or to compensate for moisture variations in the wood, temperature alone would be the variable changed.

This has worked out exceptionally well in practice. The digesters are blown on time, without reference to blowing tests. The pulp quality responds immediately to changes in temperature schedule, and this provides a very desirable means for maintaining uniformity of product.

The graphs already discussed show well the nature of the temperature schedule used, Fig. 9 representing the type employed at present. The pressure schedule for this particular cook is given in Fig. 10. Graph A shows the digester pressure at all stages of the cook. Graph B shows the pressure of the steam on the heater throughout the cook. Note that during the preliminary heating, the first two hours of the cook, low pressure extraction steam was used, as pointed out earlier in the paper. Let it be noted that these charts represent automatic control of both temperature and pressure. The automatic control feature has proven satisfactory and gives a close duplication of results from cook to cook.

As concerns pulp quality, it has been possible by means of this system to maintain a very uniform condition in this respect. Both bleachability and physical tests are normally maintained within the limits of error of the testing methods. When divergence is experienced it can always be traced back to some malfunction of the system.

In addition the physical properties of the pulp, for any given bleachability, have been appreciably improved. The

Mullen Test, both initial and maximum, has been raised from 7 to 10 per cent.

There has been a definite increase in the yield of pulp per unit of wood, as compared to runs without the system under similar conditions. For the same bleachability, the increase has been normally 5 per cent.

There has been a decided increase in yield per cook. This is, in part, of course, due to the increase in yield per unit of wood. Further, the use of the chip distributor has permitted of charging more wood to the digester. This digester yield increase has amounted to a minimum of 12 per cent.

With recovery methods as efficiently applied as with the normal system there has been a decrease in chemical, that is, sulphur and lime consumption. This decrease has conformed closely to digester yield increase, as would be expected. Our experience shows it to be a minimum of about 12 percent.

Steam consumption has dropped appreciably. The total steam delivered to the digesters has decreased about 10 per cent. In addition, credit for the heat in the condensate has amounted to another 10 per cent, giving a total steam saving of 20 per cent. In this particular installation, where extraction steam was made use of, the credits from its use have caused even a greater reduction.

Also boiler house operation has been improved in that boiler water make-up has been reduced very appreciably.

Conclusion

The objective set has been quite well attained. By means of this system, the variables affecting cooking can be controlled and the process responds logically to changes made in the variables.

A pulp of improved quality can be produced at a reduced cost.

And finally no serious operating difficulties have developed in the routine use of the system.

Acknowledgments

The authors are grateful to the management of the Kimberly-Clark Corporation for the encouragement and support given them throughout the period of development of this process.

Also much credit is due A. R. McAllister of the Babcock & Wilcox Company for the splendid service rendered by him in connection with the corrosion resistant alloy problem involved in this project.

Further, the contributions of H. M. Ostertag and F. G. Wheeler of the Kimberly-Clark Corporation, in connection with numerous design features involved in this system have proven of great value.

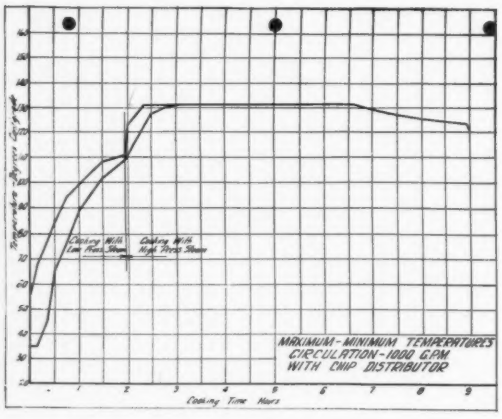

Fig. 9.

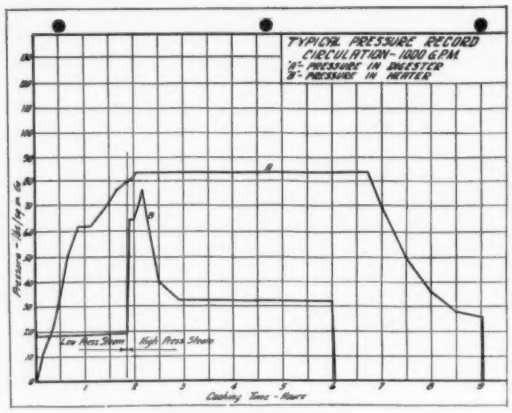

Fig. 10.

TAPPI Notes

A. L. Sherwood formerly chemist at the National Folding Box Company, New Haven, Conn., is now assistant superintendent at the Sutherland Paper Company, Kalamazoo, Mich.

A. G. MacIntyre formerly president of the Androscoggin Pulp Company, South Windham, Maine, is now with the Miami River Mills Inc., of Franklin, Ohio.

Lois Hans, formerly research chemist of the Container Corporation of America, Chicago, Ill., is now with Petengill Inc., 152 E. 36th street, New York.

R. H. Stevens has resigned his position as research director of the Bogalusa Paper Company, Bogalusa, La.

R. A. Campbell who recently graduated from New York State College of Forestry is now with the Container Corporation of America at Carthage, Ind.

W. T. Marble, formerly chemist of the Scott Paper Company, Chester, Pa., is now located in the Manayunk, Pa., Division of the Container Corporation of America.

P. W. Carr has been appointed sales manager of the George & Sherrard Paper Company, New York, N. Y.

C. Lawrence Reece, formerly chemist with the Rag Content Paper Manufacturers Association, is now chemist for the Whiting Paper Company, Holyoke, Mass.

H. J. Stilp, formerly chemist of the Bryant Paper Company, is now manager of the American Paper Chemicals, Inc., Kalamazoo, Mich.

James d'A. Clark has resigned his position as development engineer of the Mead Corporation, Chillicothe, Ohio, and may be reached at Red Hook, N. Y.

E. F. Whittington has resigned as chairman of the Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry. Harry C. Bradford, secretary of the Rex Paper Company is now chairman.

Correction: In Technical Association Papers, Series XV, page 38, column 1, sixth line from botton, "There are other preservatives like zinc emet arsenite."

E. O. Reed of Crane & Co., Dalton, Mass., has been appointed chairman of the program committee of the fall meeting of TAPPI to be held at Holyoke, Massachusetts, September 14-16, 1932.

Room reservations should be made early at the Nonotuck Hotel, Holyoke, Massachusetts, for the TAPPI fall meeting. A large attendance is expected.

SECTION OF THE
COST ASSOCIATION OF THE PAPER INDUSTRY
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THE AMERICAN PAPER AND PULP ASSOCIATION
Edited by Thos. J. Burke C.A. Sec.-Treas.

Self - Regulation By Industry*

Relentless, selfish competition has brought our industries to the brink of ruin. Unless checked it is seriously questioned if our capitalistic system can survive. That is a strong statement, but this is no longer a time to compromise with soft words.

Business exists for making profits. When profits disappear, business likewise disappears. The satisfaction of labor working for an adequate wage, of the consuming public for an adequate supply of goods at reasonable prices, of the investor for a return on his money, of the government for an unimpaired source of tax returns, are all dependent uniformly upon the profitable operation of business.

Unequalized Production and Consumption

Unequalized production and consumption has kept prices at a level that has created losses for most all our business interests. In the face of this situation, there are too many who are still obsessed with an inherent faith in getting all the business in sight as the only solution to their own problems. They believe that it offers the one assurance of continued operation. In such a wild scramble for business, prices and profits have been cast overboard as a few, prompted by selfishness, have created a demoralized condition throughout their industry, and in opposition to stabilization.

It is difficult for some to accept the idea that operating policies must be based upon conditions of sale. They are too frequently formulated by disregarding them entirely. The danger is not entirely a lack of business, but the failure to maintain prices that include a reasonable profit.

Destructive competition has brought consumers to the point where they regard low prices as the only consideration in their purchases. Price cutting has educated buyers to realize that the low price of today may not be the low price of tomorrow.

The problem is not so much the cut price as it is the attitude of some of the sellers who are out to get the business at any price. Invariably they cut their own low price, and such a policy incurs economic loss. The regrettable part is that someone loses his temper and uses his time and money to prevent someone else from getting business to which he may be entitled. Under such conditions we should not forget the old adage "whom fortune wishes to destroy she first makes mad."

The constant lowering of prices is an endless process. The price cutter may be low today, but his competitor will see to it that he is not low enough tomorrow. In this downward trend of prices there comes a time when profits are dissipated and business is being transacted at a loss. In this wild scramble for volume, industry must learn that distress lurks just ahead and the only remedy lies in the rationalizing of output.

If demoralized price cutting is to be eliminated, the sellers must exert their leadership, and in the formulation of their selling policies they must define fair practices and then vigorously enforce them without any partiality or deviation. One of the most constructive influences is the establishment of a one price policy thereby establishing prices and discounts that will be fair to all.

There is only one way to make money in business. That way is to sell the product produced at a profit. It takes courage to look a large order squarely in the face and say "No" if it is not in accord with established terms and prices. Price cutting is a direct result of unreasonable selfishness for business, and destructive cut-throat competition is a result. Minds filled with rancor, hate, jealousy and suspicion will be met with similar mistrust. Confidence and faith in one another, as Judge Gary stated, is vital, if progress is to be made.

Price Cutting Contrary to Buyer's Interests

Price cutting is directly contrary to the interests of the buyer. While the law of supply and demand operates, it is economically sound for the buyer to try to get the best possible price, but to drive the bargain below the line of fair profit, good quality, and proper service is poor business in the long run. Substitutions, inferior quality, and inadequate service logically follow. The buyer suffers and pays a much greater price in the end.

Every business institution is both a buyer and a seller. If we are to sell at a profit we must buy at a profit. Take for instance the automobile industry. If their purchasing departments were to pound down the price for steel or other requirements they would lose in the end. They cannot expect to take the profits away from their supply sources and get the profits that otherwise would be available.

It is time for the price cutter to stop price cutting and for the bid chiseler to discontinue his unfair practice. It is time we should all recognize that we are both buyers as well as sellers. Both functions should be intelligently con-

* Extracts from address of Charles F. Abbott, Executive Director, American Institute of Steel Construction, delivered before the National Purchasing Agents' Association Convention, Detroit, June 6, 1932.

ducted, but we cannot expect fair prices and fair treatment if we hammer down prices below a reasonable point in our own purchases. We must be as fair in our buying as we expect other buyers to be toward us.

Would Hasten Business Revival

If our business men would agree to discontinue price cutting and bid chiseling and to pay fair prices we would hasten the trend of business revival. We should all insist that our purchasing agents recognize the right of all from whom we buy to a fair profit and to discourage purchases at prices that are below a reasonable minimum.

Unless price cutting is stopped and prices are advanced to the point where they will show a reasonable profit, then wages must be reduced, increasing the volume of unemployment. Wage scales cannot be maintained and the unemployment problem cannot be solved unless profits can be realized. Prosperity and destructive price-cutting competition have no relationship one with the other. We cannot rebuild our prosperity in a market of declining prices.

Bankers Recognizing This Distinction

Bankers are beginning to recognize this distinction. The member is entitled to more favorable consideration. Buyers are likewise attaching greater importance to trade association membership. They have reasons to place greater confidence in those who are promoting industrial standards and abiding by the practices as established by the association. The non-cooperator invites suspicion by his very position of isolation, and individualism is not accepted today on a par with organized cooperation.

The opportunity of industry to recover awaits a cooperative plan to promote normal business and normal profits. It is obvious that if our industries are to progress and contribute to the welfare of the country the way will be found in the creation of reasonable profits and not in a struggle to obtain volume at a disregard of fair prices. It is evident that the country must soon choose between unregulated competition and cooperative competition, which will prevent excessive prices.

Much in the Way of Encouragement

There is much in the way of encouragement when an industry will get together and plan to meet its problems. Such conferences cannot help but arouse enthusiasms and when business men become enthusiastic there is reason to believe that definite accomplishments will result. In any event, cooperative planning is a demonstration that an industry is alive and at least making an effort to surmount its difficulties.

It is a case of deciding what we are willing to do. Either we are to work out our own future, our independence and maintain freedom of business operation, or we will find that a form of commission will take charge of our business affairs and tell us just what we can and cannot do. It is difficult to believe that our business men will sacrifice self control and regulation and permit themselves to be led to the brink of a government-operated business.

Will Be a Profit-Minded Individual

The business executive of the future will be a profit-minded individual, imaginative, creative and aggressive. He will be a man of new ideas and with the courage to put them into practice. He will understand production, finance and selling, but he will not be a specialist in either. He will be open minded, and capable of analyzing problems and free to apply the proper remedies.

New York Trade Jottings

C. F. Asker has been appointed sales manager of the Swedish Pulp Company, succeeding S. Boman, who resigned as of July 1, last.

* * *

W. G. Mitchell, formerly executive in charge of manufacturing, of Price Bros. & Co., Ltd., Quebec, P. Q., is spending several days in New York.

* * *

Jose de la Macorra, Jr., assistant manager and technical director of the San Rafael Paper Company, Mexico City, Mexico, is a New York visitor. He is staying at the Waldorf-Astoria Hotel.

* * *

Morris Schlosser, of the Schlosser Paper Corporation, has been appointed to serve on the Graphic Arts Committee to raise necessary funds for the continuance of the work of the Boy Scout Foundation of Greater New York.

* * *

Ellsworth Geist, of the S. D. Warren Company, who is chairman of the Program Committee of the Associated Printing Salesmen, Inc., announces that his committee is now arranging a program of the forthcoming season's activities of the association.

* * *

The Leshner Corporation, paper mill supply dealers, of Hamilton, Ohio, have discontinued their New York branch office at 277 Broadway. Harris Goldman, who had charge of the branch, has started operations on his own account, with headquarters at 53 Pike street, New York.

* * *

Harry F. Masman, formerly traffic manager of the National Association of Waste Material Dealers, Inc., and recently of Masman & Browne, traffic specialists, of 27 William street, New York, has been appointed district manager of the Buffalo District of the Trunk Line Freight Inspection Bureau.

* * *

The Daily Graphic, Inc., publisher of *The Evening Graphic,* which suspended publication last week, has liabilities of $3,132,521, of which $65,847 is owed the Perkins Goodwin Company; $23,903 the Spruce Falls Power and Paper Company; $22,168 the Sherman Paper Company; $19,000 the Kimberly-Clark Corporation and $8,090 the International Paper Company.

New Federal Taxes

[FROM OUR REGULAR CORRESPONDENT]

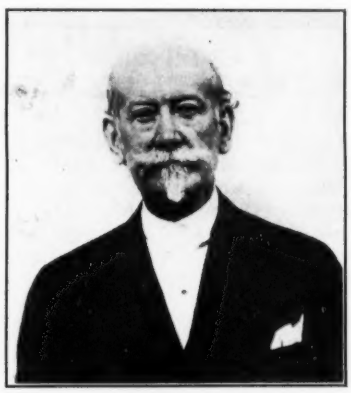
DAYTON, Ohio, July 11, 1932—An impressive example of how the new Federal taxes are working was in evidence this week, Karl Eberling, county recorder of Butler county, of which Hamilton is the county seat, stated. A trust indenture for $2,500,000 from the Gardner-Richardson Company, the newly-formed or consolidated container corporation, to the Central Trust Company of Cincinnati, was filed through the new Government requirements, the document bears three stamps, two of the $1,000 denomination and one of $500 for a total of $2,500 tax. Recorder Eberling reported that the recording fee, based on the size of the trust indenture, was $30.

The Gardner Company, of Middletown, and the Richardson Company, of Lockland, recently combined their container manufacturing plants under one company head, and are proceeding satisfactorily under the new plans. Those at the Hamilton office remain where they are with responsibilities divided among executives, while the same is true of the Lockland Division.

Dean of Paper Salesmen's Long Service

Alonzo A. Thomas, of the Wilkinson Grey Company, general paper merchants, of 419-421 Broome street, New York, completed his fifty-ninth year in the paper industry on June 1st last and is still going strong. Mr. Thomas is one of the pioneers of the paper industry and is known, far and wide, as the Dean of Paper Salesmen. The PAPER TRADE JOURNAL trusts that he will be spared for many more years to continue to adorn the profession which he has served so well and for so long. The following brief sketch of his career has been prepared by himself:

"On June 1, 1873, I crossed the threshold of my commercial parent home of Wilkinson Bros. & Co., paper and twine business, 72 Duane street, New York. My position at that time was as an assistant bookkeeper. I remained in that capacity for a few years, when I was transferred



ALONZO A. THOMAS

to the sales room to be an assistant manager to the late William H. Leach, who was a member of the firm.

"In my two positions I would take advantage of my luncheon hour, 12 to 1 o'clock, and go on the outside and solicit business, and was rewarded by my untiring efforts. I have always been the strong advocate in the firm belief that perseverance merits success. I then parted the veil of the future, and it was revealed to me what my prospects would be should I continue to remain as an inside man.

"Bringing to mind the never failing quotation of the Immortal Bard Shakespeare. 'There is a time in the affairs of men which, taken at the flood, leads on to fortune —success. We must take the current when it serves, or lose the venture.' I did not hesitate to immediately grasp the golden opportunity that was then offered me, and with what customers I had secured I resigned my position of the indoor services to take up the outdoor salesmanship, and to lay a firmer foundation for my future welfare.

"I have been richly rewarded by my very many old time valued friends, who have faithfully remained with me since my first venture in the soliciting. I regret exceedingly that so many who were with me in the days of long ago have passed beyond the demarkation, the mysterious veil that separates the two great eternities. But, memories are perennial and are not to die.

"Looking back in the wake of time I oft do sit in the great room of the past in the reverie of memory of former days, many, very many, pleasant reminiscences come trooping past.

"The paper and twine trade of the good old days of long ago was then confined to Beekman, William and Duane streets, now covering the vast territory of the five great boroughs of Manhattan.

"Competition in the good old palmy days was of a nominal character, and good living prices were to be had.

"There is no overlooking the fact that commercial life is exceedingly quiet, and profits; well—enough said.

"We have experienced former visitations of the heavy burden of depressions, and we have always emerged from them with courage and patience, and by constant perseverance.

"The present depression is not an exception, and it will most certainly have its exit, as all other previous ones had done, and the good old days of prosperity will surely again be ushered in for us. Poor indeed is he who has not patience.

"In the year of 1894, Wilkinson Bros. & Co. moved from their old home, 72-74 Duane street, into their new home, 419-421 Broome street; in October, 1930, the old firm passed out of their commercial life, and was then succeeded by Wilkinson Grey Company, and are now doing an extensive paper and twine business. I heartily wish them an unlimited present and future success.

"I have now entered the vestibule of my sixtieth anniversary with Wilkinson Grey Company, and that it will be granted me the exceptionally rare pleasure that on June 1st, 1933, to be the ever-grateful recipient of hearty and valued felicitations from Mr. H. J. Grey and all of my fellow associates and many other numerous friends who so very sincerely and heartily extended their congratulations on my reaching the 59th milestone anniversary in the trade.

"I very gratefully acknowledge and express my fathomless depths of appreciation to Mr. H. J. Grey for his personal intrinsic congratulatory testimonial on the completing of my 59th anniversary with the old firm, and that of the new firm, which is far beyond the span of human life which I am exceedingly proud of, and very highly value."

Tribute by H. J. Grey

Mr. Thomas has received the following tribute from H. J. Grey, head of the Wilkinson Grey Company:

"June 1st, 1873—just fifty-nine years ago. Pioneer in the paper industry. The Dean of Paper Salesmen. It is, indeed, a privilege and a pleasure to have you with us.

"Your enthusiasm after all these years is always an inspiration to me. It is with difficulty that I visualize the many years of hard work and conscientious effort which you have given your calling. To know you is to honor, respect and love you. Readily do I recognize and realize why every one of your customers whom you have supplied so many years, think so highly of you and are so loyal to you.

"Your own true loyalty to me is, in itself, indicative and accounts for the loyalty which is reflected in your customers.

"It makes me particularly happy to know that you so thoroughly enjoy continuing to work with me and I am delighted with the thought that you feel yourself perfectly at home since the reorganization.

"Permit me again, on this auspicious occasion to extend to you my very best wishes and my sincere congratulations on completing fifty-nine years of work in the most interesting business in the world.

"I sincerely hope that you will continue to be able to

meet your many friends as often as you wish to and continue to enjoy unlimited association with them.

"It is not often that an employer has the opportunity to greet one of his most loyal and conscientious workers who has been carrying on for fifty-nine years with his organization. Your fine spirit of cooperation and sterling character is an association which I thoroughly enjoy.

"Your words of assurance that you were thoroughly contented and happy to work with me imparted to me a thrill which words cannot express. It is a feeling which is exemplified through the more beautiful things in life, such as, possibly, music and flowers."

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 11, 1932—After a business connection of 54 years with the Boston subsidiary of Edwin Butterworth & Co., Ltd., Manchester, England, Charles H. Wood, for many years the managing director, has decided to retire. Horace Binney Sargent remains as president, with Gordon E. Emerson as treasurer and Herbert B. Hollis as assistant treasurer.

The Hammermill Paper Company, Erie, Pa., has prepared a comprehensive sample book of Hammermill Papers and has provided a plan for its distribution throughout New England by Carter Rice & Co., Corp. and Storrs & Bement Company. This compilation of samples makes a utility reference book, which is one and a quarter inches thick and weighs two pounds.

Carter Rice & Co., Corp., are to distribute very shortly a limited supply of sheets demonstrating an unusual dandy roll treatment on paper bearing a special water mark, prepared by the Collins Manufacturing Company, Holyoke, Mass., in commemoration of the George Washington Bi-Centennial. The sheet is made from 100 per cent pure rag stock. The water mark, comprising a drawing of George Washington's head and a quotation of the general, occupies nearly all of the sheet.

John L. Hobson, treasurer of the St. Croix Paper Company, with offices at 244 Washington street, has returned from a visit to the plant of the company, Woodland, Me.

Ernest S. Reid, mill agent, has added to his list of representative concerns the Hamersley Manufacturing Company, Garfield, N. J.

George A. Smith, vice-president of the New York and New England Paper Company, Holyoke, Mass., called on the Boston trade last week.

F. Bendel Tracy, head of the Fort Hill Paper Company, has returned from a very enjoyable five weeks' trip to Europe, on which he was accompanied by Mrs. Tracy.

F. F. Spaulding, president of the Spaulding & Tewksbury Company, has returned from a vacation trip to New Hampshire.

L. B. Tewksbury, vice-president of Spaulding & Tewksbury Company, Yale, 1902, attended his class reunion and 30th anniversary at New Haven.

New Power Transmission Guide

Alexander Brothers, 14 South street, Philadelphia, have issued a new Power Transmission Guide for leather belt drives which will be entirely new in presenting the application and design of modern leather belt drives. The engineering staff of Alexander Brothers spent considerable time in compiling this book and it has been arranged with a view to making it non-technical, yet containing real facts for everyone interested in power transmission. A copy of this work may be obtained from Alexander Brothers by writing for Catalogue No. A-103.

Baltimore Paper Men Meet

The Baltimore and Washington Paper Trade Association held its annual meeting and outing at the Annapolis Roads Golf and Country Club on Friday, June 24. Chester Spaulding, assistant secretary of the National Paper Trade Association, attended this meeting and

FOUR PAST PRESIDENTS

Reading left to right—Bolling W. Barton, Harry A. Lengnick, Newton W. Schillinger and William N. Schaefer, of the Washington and Baltimore Paper Trade Association.

brought a message of interest to the members, pertaining to conditions in various sections of the country.

The following officers were elected: Eugene H. Lazenby, President; Lee D. Mahon, Vice-President; James D. Bligh, Secretary; John Lorenz, Treasurer; Wm. N. Schaefer, Fine Paper Delegate; James D. Bradley, Alternate Fine Paper Delegate; H. A. Simpson, Coarse

TWO SECRETARIES

Chester Spaulding, assistant secretary of the National Paper Trade Association, and James D. Bligh, secretary of the Baltimore and Washington Paper Trade Association.

Paper Delegate; C. W. Andrews, Alternate Coarse Paper Delegate.

Executive Committee: John Burke, chairman, Frank Parsons, James Warner, George Strott, M. Kiesewetter.

New Cotton Wadding Machine

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 11, 1932—Ralph Loomis, of Loomis & Co., has announced that he has just developed a new machine to make cotton wadding on a competitive basis with cellulose for packing and shipping purposes.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JULY 9, 1932

CIGARETTE PAPER

De Manduit Paper Corp., Ile de France, Havre, 100 cs.; Champagne Paper Corp., Ile de France, Havre, 17 cs.; Champagne Paper Corp., Collamer, St. Nazaire, 142 cs.; De Manduit Paper Corp., Collamer, St. Nazaire, 435 cs.; American Tobacco Co., Collamer, Bordeaux, 195 cs.

WALL PAPER

Irving Trust Co., Albert Ballin, Hamburg, 6 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Merchant, London, 2 cs.

NEWS PRINT

W. H. Bell, Markland, Liverpool, N. S., 3297 rolls; Int'l. Paper Co., Cornerbrook, Dalhousie, 4712 rolls; ——, Bergensfjord, Oslo, 485 rolls; Bank of Montreal, Humberarm, Cornerbrook, 6474 rolls; Perkins Goodwin & Co., Albert Ballin, Hamburg, 42 rolls.

PRINTING PAPER

Keuffel & Esser Co., Keifuku Maru, Hamburg, 58 rolls, 3 cs.

WRAPPING PAPER

Freedman & Slater, Veendam, Rotterdam, 11 bls.; C. Steiner, Albert Ballin, Hamburg, 6 cs.

KRAFT PAPER

Walker Goulard Plehn Co., Albert Ballin, Hamburg, 28 bls.

DRAWING PAPER

Keuffel & Esser Co., Keifuku Maru, Hamburg, 22 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., American Merchant, London, 5 cs.; J. Manheimer, Majestic, Southampton, 149 bls.

FILTER PULP

R. F. Downing & Co., Minnetonka, Antwerp, 5 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Minnetonka, Antwerp, 41 cs.; Phoenix Shipping Co., Albert Ballin, Hamburg, 1 cs.

METAL COATED PAPER

Taub Hummel & Schnall, Albert Ballin, Hamburg, 7 cs.; Globe Shipping Co., Albert Ballin, Hamburg, 6 cs.; K. Pauli Co., Albert Ballin, Hamburg, 17 cs.

COATED PAPER

Happel & MacAvoy, Albert Ballin, Hamburg, 39 cs.

PHOTO PAPER

J. J. Gavin, Mauretania, Southampton, 4 cs.

COLORED PAPER

P. H. Petry & Co., Bremen, Bremen, 3 cs.

TRANSFER PAPER

Rohner Gehrig & Co., Bremen, Bremen, 5 cs.

COVER PAPER

Int'l. Forwarding Co., Albert Ballin, Hamburg, 6 cs.

WAXED PAPER

Yardley & Co., American Merchant, London, 2 cs.

PITH PAPER

Nosawa & Co., Kinai Maru, Keelung, 1 cs.

STENCIL PAPER

Frankel Carbon & Ribbon Manfg. Co., Majestic, Southampton, 1 cs.

MISCELLANEOUS PAPER

C. L. Voorhees, Kinai Maru, Yokohama, 6 cs.; Keller Dorian Paper Co., Ile de France, Havre, 4 cs.; Satisfaction Supply Co., Albert Ballin, Hamburg, 10 bls.

RAGS, BAGGINGS, ETC.

Bank of New York Trust Co., Caledonia, Glasgow, 65 bls. bagging; ——, Caledonia, Glasgow, 50 coils paper stock; E. J. Keller Co., Inc., Wytheville, ——, 120 bls. bagging; E. J. Keller Co., Inc., Gourko, ——, 104 bls. new cuttings; E. J. Keller Co., Inc., Gourko, ——, 467 bls. flax waste; G. W. Millar & Co., Gourko, Antwerp, 194 bls. flax waste; ——, Gourko, Antwerp, 211 bls. bagging; —— Gourko, Antwerp; 34 bls. rags; ——, Kinai Maru, Osaka, 40 bls. rags; Amtorg Trading Corp., Cliffwood, Leningrad, 1082 bls. rags; J. Kreielsheimer, Morro Castle, Havana, 20 bls. rags.

OLD ROPE

Intl. Purchasing Co., Gourko, Hull, 169 coils; W. Steck & Co., Gourko, Hull, 84 coils.

WOOD PULP

Castle & Overton, Inc., Veendam, Rotterdam, 140 bls. wood pulp; West Virginia Pulp & Paper Co., Bauta, Guysborough, 1200 cords pulpwood; Chemical Bank & Trust Co., Bergensfjord, Oslo, 175 bls. sulphite; Johaneson Wales & Sparre, Inc., Keifuku Maru, Hamburg, 680 bls. wood pulp, 102 tons; ——, Cliffwood, Vasklot, 9900 bls. sulphite, 367 tons; Lagerloef Trading Co., Cliffwood, Wiborg, 598 bls. sulphite, 101 tons; Castle & Overton, Inc., Cliffwood, Wiborg, 2501 bls. wood pulp, 500 tons; Lager-

loef Trading Co., Cliffwood, Rauma, 3456 bls. sulphite, 602 tons; Lagerole Trading Co., Cliffwood, Raunva, 540 bls. mechanical pulp, 108 tons; ——, Cliffwood, Rauma, 320 bls. sulphite.

WOOD FLOUR

The Burnet Co., Veendam, Rotterdam, 500 bags; Corn Exchange Bank Trust Co., Veendam, Rotterdam, 595 bags; State Chemical Co., Veendam, Rotterdam, 350 bags; Corn Exchange Bank Trust Co., Bergensfjord, Flekkefjord, 60 bags.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 9, 1932

Allen Manfg Co., Wytheville, Antwerp, 74 bls. rags; T. M. Duche & Sons, Wytheville, Antwerp, 470 bags glue stock; J. Weber & Co., Wytheville, Antwerp, 13 cs. wrapping paper; ——, Cliffwood, Vasklot, 640 bls. sulphite, 106 tons; Lagerloef Trading Co., Cliffwood, Wiborg, 1575 bls. sulphate, 316 tons; Castle & Overton, Inc., Cliffwood, Wiborg, 1469 bls. wood pulp, 293 tons; Lagerloef Trading Co., Cliffwood, Rauma, 80 bls. sulphite, 16 tons; Lagerloef Trading Co., Cliffwood, Rauma, 405 bls. mechanical pulp, 81 tons; ——, Cliffwood, Rauma, 96 bls. sulphite, 15 tons.

CAMDEN IMPORTS

WEEK ENDING JULY 9, 1932

——, Cliffwood, Vasklot, 3650 bls. sulphite, 609 tons; Lagerloef Trading Co., Cliffwood, Wiborg, 3750 bls. sulphite, 626 tons.

BALTIMORE IMPORTS

WEEK ENDING JULY 9, 1932

Congoleum Nairn Co., Wytheville, Antwerp, 637 bls. rags; Congoleum Nairn Co., Collamer, St. Nazaire, 280 bls. rags; Lagerloef Trading Co., Cliffwood, Wiborg, 1136 bls. sulphite, 231 tons; Lagerloef Trading Co., Cliffwood, Rauma, 473 bls. sulphite, 80 tons, Lagerloef Trading Co. Cliffwood, Rauma 3210 bls. mechanical pulp, 642 tons, Congoleum Nairn Co., Liberty, Havre, 491 bls. rags; Parsons & Whittemore, Inc., Haimon, ——, 250 bls. sulphite.

NORFOLK IMPORTS

WEEK ENDING JULY 9, 1932

——, Wytheville, Antwerp, 122 bls. bagging; Irving Trust Co., Wytheville, Antwerp, 130 bls. bagging; De Manduit Paper Corp., Collamer, St. Nazaire, 100 cs. cigarette paper; ——, Liberty, Dunkirk, 72 bls. bagging.

BOSTON IMPORTS

WEEK ENDING JULY 9, 1932

——, G. F. Malcolm Co., Laconia Liverpool, 4 cs tissue paper; E. J. Keller Co. Inc., Coelleda, 101 bls. bagging; E. J. Keller Co. Inc., Hannover, 339 bls. wood pulp; Parsons & Whittemore, Inc., Hannover, 1000 bls. sulphiite; Parsons & Whittemore, Inc., Topeka, 1200 bls. sulphite.

PORTLAND IMPORTS

WEEK ENDING July 9, 1932

—— Bulkley Dunton & Co., Trolleholm, 1750 bls. wood pulp; Bulkley Dunton & Co., Gonzenheim, 1000 bls. wood pulp, Bulkley Dunton & Co., Belos, 750 bls. wood pulp.

The Wonder Book of Rubber

Portraying the romance of the rubber industry, and the part played in its development by the Goodrich company, manufacturers of more than 32,000 articles of rubber, The B. F. Goodrich Company has issued its latest publication, "The Wonder Book of Rubber."

After relating discovery of rubber by South American Indians, and tracing slow growth of its use in earlier years, the book turns to description of manufacturing processes. It gives brief, but clear explanation of construction of tires, footwear, rubber sundries, mechanical goods and other products covering the range of American industry.

"This book is not offered as a scientific discussion, but only as a story of rubber manufacture and use of rubber products," foreword declares.

Well illustrated, the pictures range from those taken in the tropical jungle and rubber plantations of the Far East to scenes in the Goodrich vulcanizing "pit" and elsewhere in its factories.

Founding of Goodrich in Akron in 1870 by Dr. Benjamin Franklin Goodrich, Civil war surgeon is related. World-wide activities of Goodrich also come in for discussion, pictures and print telling the story of fabric mills, manufacturing plants in this country and abroad and distribution of products throughout the civilized world.

A copy of this book may be obtained by applying to the Public Relations Department, B. F. Goodrich Company, Akron, Ohio.

New E. D. Jones Valve Bulletin

A new, eight page bulletin, featuring the Reed Stock Valve, now manufactured solely by E. D. Jones & Sons Company, Pittsfield, Mass., and also their Beater Valves: Oblong and Round, Emptying, Water Device, Hydrant, Combination wash-up, Quick-opening, and Globe and Angle Valves,—has just been issued by this company.

It is profusely illustrated, and clearly describes the design and operation of each type valve.

A chart listing the weights, volumes, etc., of liquid pulp stock carrying various percentages of air dry stock, and also a chart showing loss in pressure due to friction in smooth pipe—consistency per cent of air dry stock—friction loss in lbs. per square inch 100-inch pipe—offers valuable information to mill men interested in valve performance.

A copy of this bulletin will be mailed, upon request to the E. D. Jones & Sons Company, to any mill executive interested in receiving it.

Paper Mill Employment

Decreases were shown in both employment and payrolls in the paper and pulp and paper box industries in May compared with April according to the Bureau of Labor Statistics, Department of Labor.

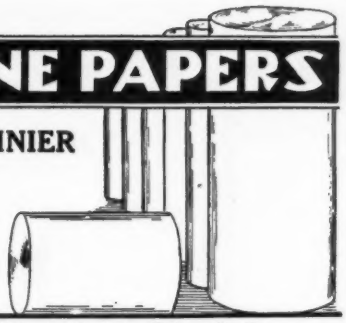
Four hundred and twenty-three paper and pulp mills gave their May employment at 79,678 a reduction of 1.9 per cent from April and of 9.2 per cent from May of last year. The weekly May payrolls averaged $1,542,627 a reduction of 4.2 per cent from April and of 27.1 per cent from May of last year.

The Bureau also received reports from 323 paper box factories which gave their May employment at 20,728 a reduction of 4.7 per cent from April and of 15.1 per cent from May of last year. Average May weekly payrolls were $382,039, a reduction of 7.6 per cent from April and of 28.3 from May of last year.

FINE FELTS for FINE PAPERS

FOR CYLINDER AND FOURDRINIER MACHINES

Let us solve your FELT Problems.



THE WATERBURY FELT CO.
SKANEATELES FALLS, N.Y.

Bleached Flax Pulp

TESTS 100% RAG

Manufactured by

J. LEMAIRE-DESTOMBES & CIE
FLAX SPINNERS
St. Andre, Nord, France

Most Excellent Half Stock for

CIGARETTE, CARBON, CONDENSER, BONDS, LEDGERS, WRITINGS, BRISTOLS, and other HIGH GRADE PAPERS

Made from 100% NEW FLAX FIBRE **Always Uniform in Color and Quality.**
Reduce Your Rag Room, Cooking, Washing and Bleaching Costs.

Samples on Request

Sole Agents for the U. S. A. and Canada.

DANIEL M. HICKS, INCORPORATED
200 FIFTH AVENUE, NEW YORK, N. Y.

MORE REPEAT ORDERS

Another plant of one of the leading manufacturers of straw products is being equipped with a 5′ x 12′ Marcy Open End Rod Mill, the fifth Marcy Mill for this company. Repeat orders mean proof of superior performance, of decreased beating costs and increased profits.

Specific inquiries are invited.

MARCY OPEN-END ROD MILLS

for Perfect Beating of Every Type of Stock

1. Positively reduce power costs.
2. Absolute control under all conditions.
3. Maximum preservation of initial strength.
4. Preserve full fibre length.
5. Positive separation of fibre bundles.
6. Positively no unbeaten stock bypassed.

Send us a sample of your untreated pulp and we will send you proof.

PAPER MILL DIVISION
The MINE and SMELTER SUPPLY COMPANY
Denver, Colorado

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, July 13, 1932.

Until after Labor Day the local paper market will be practically marking time, in the opinion of most reliable observers. Demand for the various standard grades of paper is listless at present and supplies are moving into consumption slowly. Prices are generally holding steady.

News print production in the United States and Canada is being maintained in sufficient volume to take care of current requirements. Stocks at the mills are reported above normal. Efforts are still being made in Canada to stabilize the industry. The price situation remains unsatisfactory.

The paper board market is only moderately active. Prices are easier, in most instances. No radical changes have been reported in the fine paper market, which is fairly steady. Tissues are going forward at a normal pace for the season. The coarse paper market is exhibiting a stronger undertone and more interest is being displayed in summer specialties.

Mechanical Pulp

Although demand for domestic and imported ground wood pulp is somewhat restricted there are some inquiries around which may develop into good orders. Production of mechanical pulp, both at home and abroad, is still curtailed and consequently the market is in a sound position.

Chemical Pulp

Steadiness prevails in the chemical pulp market. The continuation of the pulp mill workers' strike in Sweden is having its effect on the general situation. Demand for the various grades of domestic and imported chemical pulp is quiet at present. The contract movement is seasonal. Prices are holding to schedule.

Old Rope and Bagging

Paper mill demand for old rope is rather restricted at present. Both domestic and imported old manila rope are comparatively quiet. Prices are generally well maintained. The bagging market is irregular. While gunny bagging is going forward in fair volume, scrap and roofing bagging are listless.

Rags

The domestic rag market is decidedly dull. Demand for cotton cuttings is very light. Roofing rags, however, are moderately active considering prevailing business conditions. Domestic rag prices are strictly nominal. While some interest is being displayed in linen grades, the imported rag market is showing little improvement.

Waste Paper

Demand for the various grades of paper stock has fallen off and quotations are softer. Strictly folded news is now offered at from .23 to .28 and No. 1 mixed paper at from .13 to .18, f.o.b. New York. No. 1 white news is selling at from 1.20 to 1.30. Old kraft machine compressed bales are selling at from .70 to .75.

Twine

The position of the local twine market is practically unchanged. Most of the business transacted during the past week was along routine lines. Sales of the various grades are running at about the same volume as in the corresponding period of the past year. Despite keen competition, prices are generally holding up well.

Paper Co. Would Use Checks Fifty Times

H. J. Holderness of the Capital City Paper company of Springfield, Ill., was in Taylorville this week and while there, cashed several unique checks among his customers, says a press dispatch

While they are perfectly good bona-fide checks of his company, they are made in giant size, 18 x 7 inches, to attract attention to the message printed on the front and back.

The Capital City Paper Company is one of those firms that believes the greatest need of business men today is a greater and faster circulation of money and this special checks asks the holder who cashes it not to deposit it in the regular way, but to indorse it, then use it for payment of bills already incurred or the purchase of other merchandise, and the next receiver of the check is asked to handle it in a similar manner until it has been indorsed and used fifty times before being deposited.

In this manner the Capital City Paper Company seeks to emphasize and illustrate the purchasing power of a very few dollars if kept in circulation.

A $1,000 worth of checks if issued for only $1.00 each will represent $50,000 worth of business transactions before they are cashed.

Henry B. Hobart Dead

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 9, 1932—Henry B. Hobart, president of the Hobart Paper Company, 111 West Washington street, Chicago, died July 8 at his home at Crystal Lake, Ill., after an illness of over six months. He was 64 years old. Mr. Hobart was one of the best known paper dealers in the middle west and a veteran of many progressive moves made by the paper industry. He had conducted his business in Chicago for many years. Formerly in partnership under the name of Barton-Hobart, Mr. Hobart resigned from that partnership a few years ago to assume the entire direction of his own company. He was a widower and is survived by his sister, Miss Jessie I. Hobart. Funeral services were held Monday afternoon, July 11, at Crystal Lake, with many friends.

Holyoke Wire Cloth Co. Expands

HOLYOKE, Mass., July 12, 1932—The Holyoke Wire Cloth Company is installing a new wire weaving machine in its plant on Main street. The machine which was bought in Germany cost several thousand dollars. The concern has been very busy the past year and the first quarter in 1932 was the best in their history.

Arthur D. Little, Inc.

Chemists and Engineers to the Pulp and Paper Industry for over Forty Years

Laboratories and Experimental Mill

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Hardy S. Ferguson & Co.

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Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of

Pulp and Paper Mills and other Industrial Plants.
Steam and Hydro-electric Power Plants
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INDUSTRIAL CHEMICALS

Dependable, uniform paper-making chemicals can only be made by quantity production under strict chemical control.

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Reports	Hydro-Electric and
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Estimates	Plans and Specifications

Dietz Towel Interfolding Machines

also

TOILET PAPER MACHINES
For making Toilet and Paper Towel Rolls
(With or without perforations)

AUTOMATIC TUBE MACHINES
For Making Wire-Stitched Toilet Tubes

Sanitary Crepe Towel Machines, Roll Tighteners, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.
Correspondence solicited

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Cor. Waterloo St. (between Front & Second Sts.)
and below Diamond St.
Phila., Penna., U. S. A.

The uses of Liquid Chlorine

are rapidly expanding, so we are improving our facilities, and are prepared to ship promptly in Tank Cars, Multi-Unit Tank Cars (1-ton containers), or Cylinders (150 lbs. or 100 lbs.) from either Philadelphia, Pa., Wyandotte, Mich., Menominee, Mich., or Tacoma, Wash.

Inquiries and general correspondence should be addressed to our Philadelphia Office

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Incorporated 1850.

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Works:
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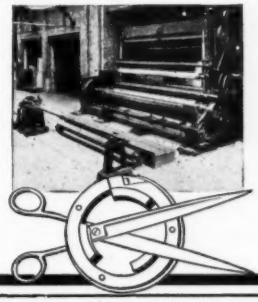
LANGSTON SLITTERS



FOR clean, square-edged, tightly wound rolls, Langston Slitters are unequaled. The Shear-Cut parts the paper cleanly—instead of *crushing* it. Ask for details.

Samuel M. Langston Co., Camden, N. J.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, July 13, 1932.

BLANC FIXE.—Demand for blanc fixe is moderately active. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is displaying a fairly strong undertone. Shipments against contract are going forward regularly. Prices remain unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues quiet. Domestic standard ground is still quoted at 5 cents and finely ground at 6 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. The contract movement is seasonal. Solid caustic soda is quoted at from $2.50 to $2.55. The flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The position of the china clay market is practically unchanged. Demand is fairly active. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Trading in the chlorine market is light at present. Contract shipments are moving at a fairly steady pace. Prices remain unchanged. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market continues fairly steady. The grades of gum rosin used in the paper mills are quoted at from $3.30 to $3.50 per 280 pounds, in barrels, at works. Wood rosin is selling at $2.50 per 280 pounds, in car lot, or over, at works.

SALT CAKE.—Conditions in the salt cake market are fairly satisfactory. Salt Cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—Most of the business transacted in the soda ash market was along routine lines. Prices are unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—The starch market is rather listless at present. Prices are generally holding up to formerly quoted levels. Special paper making starch is selling at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—No radical changes have been reported in the sulphate of alumina market of late. Commercial grades are still selling at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Paper mill demand for talc is restricted. The contract movement is fairly regular. Prices are unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	5.00	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	4.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.50	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¾	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¾	@ —
(Delivered New York)		
News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@42.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	3.25	@ 4.00
Southern	3.25	@ 4.00
Imported	3.50	@ 4.30
Boards—per ton—		
News	24.00	@25.00
Straw	34.50	@45.00
Chip	24.00	@25.00
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	30.00	@32.50
Sgl. Mla. Lt. Chip	35.00	@37.50
(F. o. b. Mill)		
Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	19.00	@21.00
Dry	21.00	@22.00
(F. o. b. Mill)		
No. 1 Domestic	18.00	@24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.10	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.50	@ 1.65
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.50	@ 1.65
No. 2 Kraft	1.35	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15
(F. o. b. Pulp Mill)		
Sulphite (Domestic and Canadian)—		
Bleached	2.10	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.50	@ 2.75
(Delivered Paper Mills)		
Soda Bleached	2.25	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	4.00	@ 4.25
New White, No. 2	3.00	@ 3.25
Silesias No. 1	3.75	@ 4.00
New Unbleached	5.50	@ 6.00
New Soft Blacks	2.75	@ 3.00
Blue Overall	3.00	@ 3.50
Fancy	1.50	@ 1.75
Washables	1.15	@ 1.40
Mixed Khaki Cuttings	2.50	@ 3.00
Pink Corset Cuttings	2.75	@ 3.25
O. D. Khaki Cuttings	3.00	@ 3.25
Men's Corduroy	1.00	@ 1.25
New Mixed Blacks	2.25	@ 2.50

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.00	@ 2.25
White, No. 2—		
Repacked	1.75	@ 2.00
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	1.50	@ 1.75
Miscellaneous	1.00	@ 1.25
Black Stockings	2.00	@ 2.25
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.25	@ 3.50
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.25	@ 4.50
New Light Oxfords	3.75	@ 4.00
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.80	@ 1.90
German Blue Linens	1.70	@ 1.80
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.00	@ 1.10
Domestic	1.15	@ 1.25
Wool Tares, light	.80	@ .85
Wool Tares, heavy	.80	@ .85
Bright Bagging	.75	@ .80
Small Mixed Rope	.80	@ .90
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.65	@ 1.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.00	@ 2.15
Hard, white, No. 2	1.40	@ 1.50
Soft, white, No. 1	1.30	@ 1.40
White envelope cuttings	1.60	@ 1.70
Flat Stock—		
Stitchless	.55	@ .65
Overissue Mag	.55	@ .65
Solid Flat Book	.45	@ .50
Crumpled No. 1	.35	@ .40
Solid Book Ledger	1.50	@ 1.75
Ledger Stock	.60	@ .70
New B. B. Chips	.20	@ .30
Manilas—		
New Env. Cut	1.30	@ 1.40
New Cuttings	1.05	@ 1.15
Extra No. 1 old	.90	@ 1.00
Print	.40	@ .45
Bogus Wrapper	.40	@ .45
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	.70	@ .75
News—		
No 1 White News	1.20	@ 1.30
Strictly Overissue	.35	@ .45
Strictly Folded	.23	@ .28
No. 1 Mixed Paper	.13	@ .18

Hungerford Water Filters

Inversand Zeolite Water Softeners

(over 200 sizes)

and

Basex Greensand Zeolite

1932 Catalog and Sample of Zeolite Sent on Request

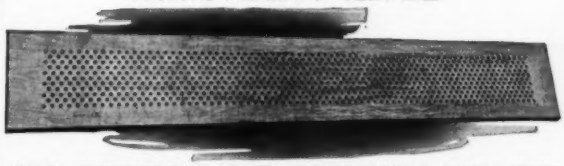
Hungerford & Terry, Inc.

CLAYTON, NEW JERSEY

"M & W"

WOOD SUCTION BOX COVERS

PROLONG THE LIFE OF THE WIRES



ONLY CAREFULLY SELECTED, CLOSE-GRAINED MAPLE USED. DRILLED PERFECTLY SMOOTH. FREE FROM IMPERFECTIONS.

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Paper Machinery Builders Philadelphia, U. S. A.

CASEIN

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THE CASEIN MFG. COMPANY OF AMERICA, Inc.

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Oldest and Largest Producers of Casein in America

THE CLARK-AIKEN CO.

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Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—
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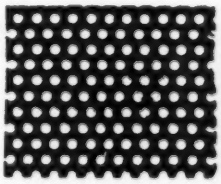
EASTON, PA.

Your Card in This Space Will Bring Results

Perforated Metal Screens

For Pulp and Paper Mills



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CHARLES MUNDT & SONS

63-65 FAIRMONT AVE. JERSEY CITY, N. J.

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 1 Soft White	1.20	@	1.35
Ledger & Writings	.55	@	.65
Solid Books	.35	@	.50
Blanks	1.00	@	1.15
Kratts	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.30	@	.35
No. 2	.20	@	.25
Mixed Papers—			
No. 1	.15	@	.25
No. 2	.10	@	.15
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	22.00	@	25.00
Chip Board	21.00	@	23.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.03½	@	.04
New White, No. 2.	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft.	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed.	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.80	@	1.90
No. 2 Hard White	1.60	@	1.70
No. 1 Soft White	1.50	@	1.65
No. 2 Soft White	1.30	@	1.45
No. 1 Mixed	.40	@	.50
No. 2 Mixed	.35	@	.40
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.00	@	1.15
No. 1 Old Manila	.90	@	1.00
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.85	@	.95
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.35	@	.40
Old Newspaper	.20	@	.25

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¾
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¼	@	.03½
(F. o. b. Boston)			
Southern Kraft	.03¼	@	.03½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	—	@	52.50
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35x to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Patent Chip	—	@	35.00
Single White, Patent Coated News Board—			
Binder	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.35
No. 1 Old Manila	.65	@	.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.90	@	1.10
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.80	@	.90
White Blank News	1.10	@	1.20
Kraft No. 1	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixed String	—	@	.32½
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	—	@	.79
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.60	@	.75
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.60	@	.65
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.75
Heavy Baling Bagging	1.00	@	1.25
Paper Mill Bagging	.60	@	.70
Bagging No. 2	.20	@	.25
No. 1 Burlap	2.75	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.04	@	.04½
New White No. 2	.03	@	.03¾
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.03
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soit	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.85
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10½	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock.	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¾

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